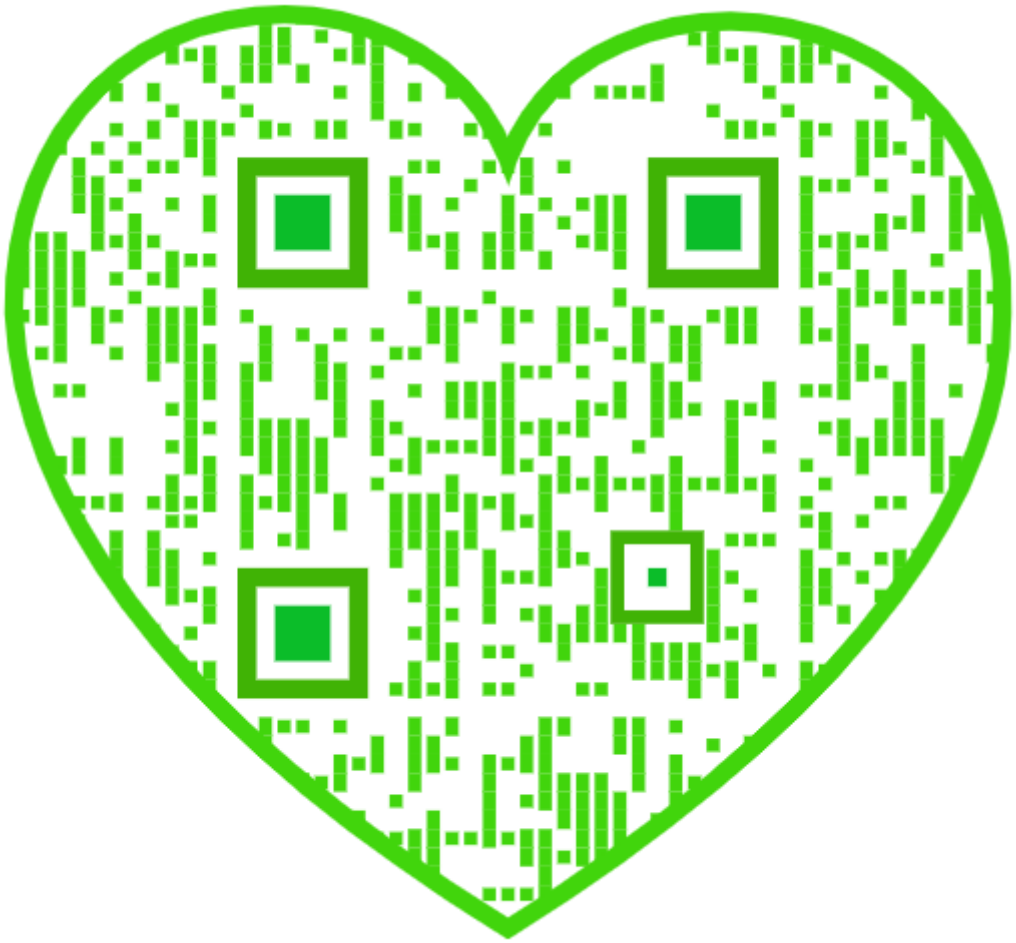

A TREATISE

ON

TURPENTINE FARMING;

BEING A REVIEW OF

NATURAL AND ARTIFICIAL OBSTRUCTIONS,

WITH THEIR RESULTS,

IN WHICH MANY ERRONEOUS IDEAS ARE EXPLODED:

WITH REMARKS ON THE

Best Method of Making Turpentine.

BY G. W. PERRY,
OF CRAVEN COUNTY, N. C.

NEWBERN, N. C.

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INTRODUCTION.

In entering upon the very responsible undertaking of publishing this Work, I feel that diffidence which, I must believe, is more or less the lot of every man on first presenting his opinions to the public for their critical examination. My reluctance is greatly increased by the fact that I have too limited an education to do full justice to the subject, which, had other and abler pens come forward to treat thereon, would probably never have been taken up by me.

Despite the difficulties which have presented themselves to my view, however, I have at length concluded to risk the attempt of laying the results of my experience before the world; satisfied, that if the TREATISE ON TURPENTINE FARMING should effect no good—which, if acted on, will, I feel confident, prove otherwise—it can certainly do no harm to any one, unless the purchase-money of the Work should be so considered.

In coming to this resolve, I must acknowledge that a weight of outside influence has been acting on me, as numerous friends to whom I have submitted detached portions of the Work, and with whom I have freely conversed upon the subject, have, for a long time past, been urging me to hurry forward the publication, believing, as most of them do, that I should thereby be conferring great public benefit on all who are engaged in the manufacture of turpentine.

Prompted, thus, on the one hand, I have, nevertheless, had my disparagements on the other. Some have sneered at the effort, asserting that 'older men than myself had

made turpentine.' To such reasoners I would merely reply, that neither age nor practice are always found hand-in-hand with true science, any more than safety is at all times to be found in multiplicity of counsel; but when truth is plainly presented to the candid mind, it seldom fails to meet a cordial welcome.

It is not my design, by this publication, to underrate the opinions or sift the actions of others; but, rather, by thoroughly analyzing the subject, to illustrate the oversight which has been committed by many in the pursuit of Turpentine Farming. If I succeed in this, I shall have satisfied the desires of an unambitious mind, in conferring whatever benefit is in my power on my fellow man. No one will deny the importance of experience being disclosed in regard to other operations — whether commercial, mining or agricultural — and why, I would ask, should it not be so in turpentine manufacturing? Will any one be bold enough to assert that no improvement is possible? Time is constantly proving the assistance of the Divine Architect in developing the exertions of Science in other channels, and shall we be told that in this alone we have attained perfection?

When we reflect that the business of turpentine farming is confined to but few of the States of this Union, and, moreover, to a very small portion in each of those States, it is not much to be wondered at that so little attention has been paid to its scientific attainment; yet, surely, if we look abroad for an incentive to its study, we can find it readily in the fact that it is used all the world over, and consequently an increasing demand for it is certain. As our beneficent Creator has blessed us with so valuable a possession, ought we not to do all in our power to cultivate and unravel it?

Extensive operations in turpentine have been carried on for the last forty years, and on a limited scale for twenty years previous; and, strange to say, no pen has been yet employed to call attention to a matter of so much interest, both in the present and future. All that we have had to guide us has been the result of communion with each other, which has, in many instances, only enabled the farmer to scramble on, as it were, with difficulties, until, at the close, he was very little wiser than when he began.

In the progress of this Treatise I have endeavored to show to the careful reader numerous erroneous ideas which have prevailed in the manufacture of turpentine, consequent on our lack of scientific research. The natural and artificial obstructions are at the same time pointed out, showing the results therefrom, and deducing from personal observation on the preparation of land during an experience of nine years, the best method which can be obtained, with our present knowledge of the subject, in the making this important article. As the reader will discover, I have made but little reference to the opinions of others, while, scientifically, I have advanced none. One reason for the latter has been the lack of means for the purpose; besides which, I could find no encouragement in public sentiment to incur expenses having no beneficial tendency, so long as popular prejudice continues to exist against improvement, or, as some consider it, innovation.

One of the greatest drawbacks which I have experienced in endeavoring to scrutinize the mysteries of Nature, has been found in the opposition to any thing like change in established systems. Censure and ridicule have frequently been my reward, for the effort to advance the interests of my brethren in the business. Sometimes have I been scoffed at as though I was urging positive falsehoods, instead

of truths which, by unceasing inquiry, I had clearly satisfied myself were as palpable as the rising and setting of the sun. Some there are who cannot approve any system that is not encouraged by a majority. Cases exist in which majorities ought, doubtless, to govern; but I can never give up my reason to numerical force when the principles of a minority are established on the unerring basis of truth.

But why complain? This very feeling has presented itself in array for ages against men who have proved themselves the benefactors of their race — men possessed of transcendent abilities, to which I can make no pretension — men whose works are destined to command the admiration of liberal minds until Time shall be no more. Galileo, Fulton, Franklin, Morse, Daguerre — these are names, among many others, who have been treated more as lunatics, and with disparagements such as would have crushed any other minds than those who believe there is much undeveloped truth in the storehouse of Nature.

Nothing daunted, therefore, I submit the experience resulting from years of careful examination, hoping it will at least be considered worthy of attentive perusal by the Turpentine Farmer.

THE AUTHOR.

CRAVEN COUNTY, N. C., November, 1858.

A TREATISE

ON

TURPENTINE FARMING,

ETC.

PREPARING LAND.

In commencing a Treatise upon the subject of Turpentine Farming, it appears to me to be judicious to make some observations upon the preliminary process of Preparation of the Land. Land requires as much preparing for the manufacture of turpentine as it does for the raising of corn or other grain. Ditching and hedging, with furrows to convey the water to the ditches, are necessary, and the ditches should be sufficiently deep to prevent water from soaking through the land, except what it receives by rain. After this, the land needs no cultivation, but every kind of turf should be turned over, such as low bush huckleberry, gallberry, percosan bush, brier beds, reed beds, wire grass, savanna grass and broom-sage grass. This turf is of no use, but proves injurious, by drawing away the strength of the land from the pines; besides which, it holds up the falling leaves and straw so long that its virtue is ultimately lost before it decays. It may be remarked, also, that where there is much turf,

it draws the entire strength of this rubbish from the pines; in addition to which, where there is much turf there is generally little soil.

Some land is naturally prepared for this business; as much so, indeed, as for any kind of grain, which frequently proves to us a great difference in quality. All clear surface land rots the leaves and straw regularly, which fills the boxes more regular, even where the land is poor; but where the turf has obtained a strong hold the boxes fill very irregularly, consequently, it should be turned over wherever it is found, and that without skinning or uncovering the pine roots.

Fire should never be carried into the forest; and, as a protection from lightning, all dead trees should be cut down and cleared away, by which means the danger from sparks of fire being conveyed over the land by the wind will be avoided.

If it be admitted, as we know to be the case, that good weather alone will double the quantity of turpentine, we would ask, What would a good preparation do? Undoubtedly, it may be answered, that land which will fill twice in it's natural state, would fill four times after being well prepared. This would remunerate the cost of labor in one year; it would prove a gain of one hundred and forty-four barrels of soft turpentine in that time, besides the hard turpentine, in the same set of boxes. This fact may seem unreasonable to those who have not noticed it, yet it is but a small improvement upon good weather, which it is known will fill double the quantity of boxes.

Lastly, we may inquire if land can be benefited by

simply boxing pines? If anything, it is against it. We should do what lays in our power to assist Nature, as we cannot expect all our land to pay us unless we do: it is a gift to us from our Maker, as well as other things, and we ought not to abuse it, as some do, for the simple reason that we have not studied how to manage it, as was intended by Nature. In short, good turpentine land will make more clear money in turpentine than in any thing else, and, in fact, it is worth more; it takes less labor, has fewer branches, and is simpler; in addition to which, it is a pleasant business to a man of industrious habits. Mismanagement has made many a man feel poor who is now rich, and who would readily acknowledge it if his eyes were opened to the true science of managing land well. Two sets of boxes on land that will fill three times is worth a six-horse farm, and the two sets can be chipped with two hands, which shows there is not much capital required for making, while we have but twenty-six weeks in a year for chipping.

Before closing this subject, I will remark, that where land is prepared the boxes sooner become solid, as it is well known that on land which is in a naturally prepared state they are sooner solid, than on that which requires preparing.

TURF AND CLEAR SURFACE.

My attention was first aroused to this subject by raking the leaves from under my vineyard. I found that I did not obtain half the amount of fruit by so doing. I therefore discontinued the practice, and the vines improved every year. My observation was thus directed to the pines, from which I had raked leaves and straw to put in my mangers for manure. I noticed that the pines did not yield half as much turpentine, with the same amount of labor, as they had done previous to raking the manure from them, and the stronger the land the worse it hurt them. In the first place, where the land is strong, the faster the leaves and straw rot, and the boxes fill up quicker and more universally; and even where the land is poor, if there is no obstruction to prevent the leaves and straw from getting to the true surface, the boxes will fill more regularly and faster. It appears that Nature has destined them to thrive in their own manure, and where they are deprived of it by raking or burning, I will unhesitatingly assert that the quantity of turpentine will be reduced, for it is the only thing that keeps the land up.

Land that is too wet prevents the litter from rotting so fast; besides, the water carries off the strength of the litter, as well as the heat and air, and leaves it without any power to assist the land in making turpentine.

Turf of any kind, assisted by the wet, becomes a natural obstruction, and the only one that we are re-

quired to prevent, or, at least, that we can prevent. In the first place, turf not only stops the falling litter from getting to the true surface, but it holds it up until the wet, and air, and heat renders it lifeless; besides, the turf prevents the land from getting wet as soon as it should after being a long time dry, which proves that it requires a continuous or very hard rain to soak the land, and after it becomes very wet, the turf keeps it too long in that state, which convinces us that land cannot be ruled by the weather where the turf is: moreover, it draws off the strength of the land and prevents it from filling the boxes with regularity, according to the strong or weak hold it more or less possesses.

We may clearly perceive, from the above facts, that very little attention is required of us, and that we had better leave its control to the action of the weather: if this plan were adopted, less blame would, in many instances, be attached to the hands for the variations which occur in dipping. I believe that cases occur in which the hands are censured, when, upon closer consideration of the subject, it would be admitted that neither they nor their owners were really acquainted with the cause.

RAKING AROUND PINES.

This practice produces another artificial obstruction, and may be justly set down as a waste of time and money. It would avail us much better to study the developments of Nature, and, having learned wisdom from her instructions, to pursue the path she has laid open before us: when we do this we shall be apt to go right, and not before.

Raking or digging the soil away from the pines exposes the roots to the cold, bleak winds in autumn and winter, and the cold rains and ice; and not unfrequently, during a great portion of the cold weather, the water and ice accumulates around them, which, on the weather setting in warm, proves more or less destructive to the pines; the roots are excessively heated, and they get bruised up and skinned by carts and wagons running over them, causing them to become solid lightwood, which prevents them from making turpentine, and finally rendering the forest useless for its production, or so nearly so that it would not repay the labor of chipping: furthermore, it leaves them subject to the fire causing them to become hard and dry, and fills the pines full of dry wood dead faces, leaving them, finally, useless objects.

Every raking, if it does no more harm, will require four chippings more every time it is done; and where it is not done, the roots keep sound and warm under the soil; the grain is soft, open and porous, ready to carry up the turpentine: in spring and summer the pines look thrifty; extremities sound; throw off the

burs regularly, and, in short, the whole pine is green, soft and porous.

Where pines have been raked or dug around they are certain to prove unprofitable to those who may rent them; I have tried it, and remember my temerity with regret. I know it is urged that raking has an advantage in preventing the evil-disposed from secretly firing; it would be of no avail, I believe, should your neighbor determine on destroying your property; but, be this as it may, I do not want to chip the pines after they are raked or burned.

BURNING OVER LAND.

Various notions are prevalent in relation to this practice, but I have been at a loss to discover any good resulting therefrom, and can only suppose it has been done by way of experiment. One thing it certainly does; it shows a few sprigs of green grass to a poor cow in the spring and summer, and perishes her to death in the winter; but as for turpentine, it robs the land of the manure, and will call for four more chippings than the regular quantity the next spring, and so on for every fire that burns the land over. Added to this, it fills the pines full of dry wood, for want of substance to exist upon; destroys the under growth; kills many of them, and stops the rapid, thrifty growth of those that live, causing them to make small grains, and rendering the wood hard and dry; exposes the roots and trees, and turns the forest into an open

savanna; impoverishes the land, and arrests the progressive improvement of the forest. Ten years will be necessary, sometimes, to recover land from the effects of a fire, even where it does not kill the pines. In short, renting of boxes where the land has been burned over will assuredly prove a bad speculation, as even a little burning will do a great deal of mischief.

It may be said that, after the end of every season, some burning would pay—that it would prevent others from burning us out, and that we should not evince an anxiety to make so large a quantity, but had better be contented to make a little every year, and be safe. This might do, of course, if the loss was not so great, and expenses could be lessened; and, particularly, if we could bring ourselves to a happy state of forgetfulness that others were yet, in all probability, to live after us.

There are certain situations where it would probably be judicious to burn some outsides, but not under any other circumstances; and, in fact, it would be more profitable, rather than go any farther, to hire a man to stay in the forest and mind it, or to offer a certain sum per annum, as a bonus to your neighbors, for the privilege of not being burnt up.

BURNING PINES.

In cases where pines are much burned by the fire, they will never make as much turpentine afterward; it makes the wood dry and tough, kills many of them, and finally renders them useless for turpentine, or so much so that they will never run enough to pay. It is contended by some that pines run the turpentine better after they have been burned, but it only makes them run that which is brought down by the heat of the fire, and if they are chipped immediately after burning, the turpentine which is brought down by the fire will run out and leave the grain of the wood open, which will fill them full of dry faces, and occasion the death of many which would have lived had they not been chipped; besides, the wood that is next to the bark has no time to recover from the heat when it is chipped immediately after the fire, and the action of the air drying the wood, causes the inside bark, that lies between the outside one and the wood (which we know is soft and tender, and is, in fact, the very life of the pine), to dry, which at once puts a stop both to the turpentine and the life of the pine itself. Whenever the hot turpentine is out of the pine, if it does not kill it, enough will never afterwards be run to make it pay. Turpentine will make its appearance every time the pine is chipped, while it remains alive, and produce enough to make those who know no better keep on chipping: if they should continue long under the delusion, it will not require many years to work out their own ruin. If, however, on the other hand, the

pines are allowed to remain as the fire left them, the charred coal made by the fire will protect them from the weather, and many will be found to live that would not if they had been chipped immediately after burning. It should be remembered there is nothing on the land at this time to assist it in making turpentine; at all events, a period of four or five years ought to be allowed, in which to recover themselves, as the land, in that time, will litter over, and contribute also to its assistance: moreover, the bark above the scarred surface is smutty, and every time the rain falls the smut will come down with the rain, and black up the turpentine.

FALL OF LAND.

Among the various considerations to be taken into account in the making of turpentine, the elevation of the land may be enumerated. Too great a fall, as well as broken or high, mountainous land, will operate against its profitable manufacture. The mountainous land in South Carolina, Florida, Georgia, Alabama and Mississippi will never make much turpentine. In these districts the best product of the article will be in the spring, when rightly managed, and when the seasons were wet.

A few years since, on meeting with a friend of mine, after some general remarks, the conversation turned on the subject of turpentine. He stated to me that his land made the most turpentine in the spring sea-

son. I replied, that 'his land had too much fall;' to which he assented, remarking, that 'it did have a great fall.'

Broken, stiff land will stand the drouth better than that which is sandy or light, and notwithstanding the extreme poverty of some of it, the turpentine will stick very close to the scarred surface. This, however, may be easily accounted for, as, where the land is too dry, the pines are naturally wanting moisture, not having sufficient water in them to throw off the turpentine. This description of land will, by late chipping, invariably introduce dry faces; and, furthermore, should the land be poor also, the pines will not prove worth the trouble of boxing to those who are expecting to realize a fortune by the operation, even should they be so fortunate as to obtain a living.

The size and height of pines will indicate with certainty whether they are worth boxing. They will be of good size and good height if the land is good, but if it is poor they will be small and low: where they are large and low it is occasioned by old age.

WATER.

We come now to a consideration of what influence water exercises on the subject of which we are treating, as it certainly will be found, upon careful scrutiny, to possess no inconsiderable share.

All pines have more or less water, according to their situation and age. Young ones have generally the

most, so far as the pines alone are concerned, but as far as the land is concerned they have the most where it is wet, and the wetter it is the more water there is in the pine. The straw separates the water from the sap, which regulates the life and health of the pine, and could the straw be kept pulled off it for three successive times it would die; at the same time, if there was too much water for the straw to absorb, and it continued too long, it would then die. In the year 1846 the mortality of the pines was the greatest I have known either before or since that time, and it was also remarkable as being one of the wettest years ever known in the memory of 'the oldest inhabitant.' The land was universally full of water, and yet without our having stormy weather; it likewise held out longer, and appeared as though the rain just fell fast enough to keep the land full. On the following year corn sold for one dollar per bushel.

While chipping pines, if the land becomes too dry they will not run much turpentine; but if warm showers of rain should continue until it becomes moderately wet, the turpentine will commence running freely, and go on until it becomes too wet. When this occurs, it will discharge less freely, which shows that there is too much water; the hard turpentine will also begin bulging and falling off. After being in too wet a condition, when it begins to dry, the turpentine will run free again, and do so until it gets too dry.

The greatest natural cause of the death of pines is wet weather; the greatest artificial cause is fire. The greater the artificial obstruction to live pines, the less power Nature has to regulate them for turpentine.

Secondly: In the winter season there is no circulation of sap, the consequence of which is that pines stand wet weather better than any other; there being no circulation, the water cannot be carried up the timber: yet there are no live pines that have not more or less of water in them, which, indeed, is a positive essential to their support.

Instances now and then occur where pines are found very large and thickly settled over the land, and presenting a very tempting appearance. Perhaps an advance has taken place in the price of turpentine: this circumstance, taken in connection with the fine appearance of the pines, and without the least consideration as to the character of the land, frequently induces persons who are actually doing a good business to throw it up, and commence turpentine farming. They work along for a few years, finding they are gradually getting into debt, and come to the conclusion at last that there is nothing to be made by it; while a little reflection at the outset, that it was that sweet beverage called water which had aided the land in producing those beautiful pines, would probably have had the effect to turn their thoughts in another direction.

It is very clear that pines produced on different pieces of land have different uses; but to make a quantity of turpentine we must have good land. The description of pines required are never found on land which is constantly covered with water; they thrive where it is alternately wet and dry.

THICK-SAPPED PINES.

Among the various notions prevailing among men, I have found some with a confirmed opinion in favor of the thick-sapped or large pines for the purpose of making turpentine. Now, if they are right, a natural view of the subject would have to be set aside, and the one previously prevailing would be correct. I must say, however, that there is no ground whatever for it, and, moreover, that it has never developed itself, and has merely sprung from supposition. While we acknowledge, at the same time, that there is more turpentine in the sap than in the heart, we are not necessarily warranted in the conclusion that the thick-sapped pines are the best for making turpentine, for we find ninety barrels out of a hundred running immediately where the inside bark and wood comes together, and what comes out of the sap of the wood merely lays the foundation for the hard turpentine. This fact will justify us still farther in demanding proof of the erroneous theory that it is only the land which makes the turpentine.

If we proceed now to the notice of the common short-straw pine, we shall discover that it never produces much turpentine unless it has a large heart, and as there is not so much passes through the heart as goes up the sap, the turpentine is thrown in a larger quantity to the outside of the wood; this, however, depends entirely upon the strength of the land.

The only advantage I could ever find in a thick-sapped pine is in the box, which is much more solid,

and firmer when it gets cured; but, after all, this is not sufficient to give it the preference on that account, for a thin-sapped pine will make one adequate to our wants, though it will not be so valuable at first as the one with thicker sap, for the reason that the heart dries up the turpentine at first quicker than the sap; in short, the latter shrinks while the former dries it.

Finally, the great Giver of all good permits us to understand the use of the works of creation as is consistent with our requirements in carrying out the grand design for which we were ourselves created. Had He, in his all-wise providence, determined that it was necessary for us, he would have taught us the purpose for which he intended this portion of his handiwork to be applied by man a hundred years sooner, and would have matured the pines to a fitting state for our use; but, as it is, we find that, just as soon as they were old enough, the design of the Creator is developed to man, whose mental vision is immediately attracted, and he devotes himself to the assistance of Nature in disseminating this newly-discovered gift for the benefit of his species. Not much more than fifty years have elapsed since our attention was first directed to the subject; and surely, when we reflect that this period is but like an infancy in the calculations of Time, we should allow that there is ample room for improving our knowledge by careful attention to the dictates of our reason, instead of coming to the indolent conclusion that Nature will do all that is necessary in the premises.

The above general remarks on the growth of the pine may, I think, not inaptly be compared with those

under the previous caption of 'Water'—the young pines are mostly sap, and have the most water, but as soon as there is sufficient heart, which comes by age, it is suitable for domestic purposes. The middle age is undoubtedly the best.

BURS.

As no attention appears to have been paid to the subject of Burs by the generality of turpentine farmers, I propose to present a few remarks thereon for their consideration. In the first place, we shall find that where pines are situated so that they are not exposed, and are perfectly sound, they will drop their burs clear and regular every year, which is a proof that they are healthy and doing well. In localities where they are much exposed, on the contrary, and are unsound, they will be found to have old burs hanging to them from year to year. Sometimes scars in various ways will cause the burs to hang a long time before falling, and in many instances a very small scar will produce a great effect, while, on the other hand, a large one will scarcely make any visible difference. This shows the necessity of boxing at the right season, and curing the wound carefully, as the best means of affording protection to our pines.

In the next place, it will be observed, that where pines are over boxed, raked round, burned, or the land burned over, and where chipping is followed late, the burs will be found, in a few years, to be hanging to

the boughs, more or less, from year to year. Boxing either too soon or too late will very soon show its effect in this way: the extremities will soon become unsound, and the turpentine will run slow, which at once proves that all is not right. We may add, that this and other obstructions will prevent pines from making a heavy mast, and as, according to Nature's laws, they cannot do two things at once, it is certain they will not produce so much turpentine in any year in which mast has been abundant, let their management be as perfect as the greatest care could make it.

The heart of a pine will be found nearest the side where it is most exposed, and the greater the exposure, the nearer the heart is to the outside; this is caused by the grain being much smaller on that side. The situation of the tree must determine which side is the most exposed, which depends on the position of the trees around it, which side one tree will protect another, &c.; and the side which is most exposed is generally the hardest side of the tree. I have also observed that an injurious effect is produced upon pines by having a number of dead limbs upon them; the air enters where the limb is dead, and causes the tree to become debilitated, and the burs will then hang for a long time. At other times they become scarred by rubbing or falling against each other, which also tends to injure them. Sometimes, again, they stand where the land is too wet, and at others where they are exposed to cold winds, heavy dews, and excessive heat. These things are all indicated to us by the burs hanging too long on the boughs.

DIFFERENT KINDS OF PINES.

Among the various qualities of pines, we may distinguish four in particular, viz., common short-straw pine; rosemary, or what some call spruce pine; pitch, or long-straw pine, and the white pine of Mississippi.

1. The common short-straw pine is not very profitable for turpentine, unless they happen to have a large heart: they generally grow very thrifty, and are more likely to be found in open vacant places than those of any other kind. They generally bud three times in a season, forming limbs each time, and in the spring season they have more or less gum about the bud, which serves to protect it from the cool winds: as the weather becomes warmer, they do not have so much, nor do they appear to require it. It is not prudent to box these pines, or, at any rate, not many of them, although I have seen it done. The length of the straw is between that of the pitch and the rosemary pine.

2. Rosemary pine.—There is less of this kind of pine than any other that is used for turpentine: they bud out very much the same as the common short straw, and are generally better for turpentine. The rosemary pine has much the shortest straw, and, as a general thing, are not found as large or tall.

3. Pitch pine.—This is most used for turpentine, and is the most valuable for any purpose. It does not, like the kinds before mentioned, form limbs at every time of its budding out; sometimes it does so in the spring, and at others not until the second or

third budding. The pitch pine has the longest straw of any, and is, without doubt, far more useful than the other kinds. It may be observed that a hog will pick up one of these pines as soon as they bud out, just as readily as they will a grain of corn, and will eat all the bark off the roots of the young ones. This pine is the most universal of any, but would seem, of late years, to have had less opportunities of increase. Among the reasons for this may be noted, that they are more easily killed by fire, and are more apt to be destroyed by stock, besides which there is an evident partiality for them, above other descriptions, by birds and squirrels. If the practice of burning the forest were to be discontinued, and the hogs kept off the land, the pitch pine would keep continually increasing, and when its great utility is considered, its preservation must certainly be admitted to be judicious. Independent of its value in the production of turpentine and tar, it is highly appreciated for lumber and for the medicinal uses to which it has been applied. In short, as Time advances, the indications of its vast importance to man become more strikingly apparent.

4. White pine.—This description of pine abounds in some parts of Mississippi, but is not fit for turpentine; the wood is light, and is mostly used for lumber. The straw of this description of pine somewhat resembles cypress leaves, and makes a beautiful appearance, when budding out, in the spring season.

WHITE WOOD.

There are numerous methods pointed out to us by which, on careful observation, we may soon discover how to succeed in attaining the most beneficial results. Among the various causes of the wood of a pine looking white at the spot where it is chipped with the roundshave, may be enumerated the following:

1. Over boxing will produce the effect, for the reason that too much of the natural surface is thereby cut away from the land.

2. Raking around pines, or weeding the surface from them. This exposes the soft roots to the bad weather, and robs them of the manure.

3. Burning the land over, which robs the roots of their natural support.

4. Burning the pines. This draws out the turpentine, and leaves the wood, or grain of the wood open, causing the air to get in and dry it.

5. Chipping at the time the sap is going down, and thereby taking out the turpentine which the pine ought to have to sustain it through the cool winter; thus leaving the grain of the wood open to receive the cool, dry air, as it is well known they cannot make light wood to keep it out.

The obstructions above mentioned may be properly classed as artificial, and which may be avoided. To these may be added the following natural causes of obstruction:

1. Cool, dry winds, and, in fact, we may add, dry weather generally.

2. Excessively moist weather, which makes the land too wet.

For the natural obstructions, a remedy is suggested readily to us, which is, to leave off chipping, and find other channels for the employment of our hands. At such seasons, a much greater profit will be found in making barrels, and in getting timber or hoops; for, to persist in our efforts to make turpentine when the operations of Nature are directed against us, can only result in the mortifying conviction that we have not only wasted our pines, but have uselessly incurred expenses for which we can obtain no remuneration.

At such times, the best that can be effected toward making turpentine is to box the pines and chip them; when the period arrives for us to realize our reward, it will be made apparent by the rapid changing of the color of the wood from a white to a yellow, or season color. When this change appears, if we have hands to do our chipping, we must pay strict attention to them, as we shall otherwise be apt to heap on them undeserved blame. I have often found it judicious, in such cases, to stay in the forest regularly with my hands, and, by examining the surface for the new chip, to ascertain whether the pine had been chipped, so that I might be afforded the opportunity of getting round among the hands in time. The better the land is, the quicker is the change. On the other hand, if there is any considerable obstruction, either natural or artificial, it will not be necessary to go into the forest oftener than every other day, as a man can look over any quantity by observing the white wood for a long distance. In such cases, after I had learned to make

turpentine, I would immediately make arrangements for removing my hands to some more profitable employment.

There are some who will be found ready to assert that the time for chipping was arrived, as the pines were running a little; but such appearances will often prove deceptive, as, if the weather be windy and cool, it sends the air up the wood, which produces the necessity of two or three more chippings after the return of good weather; added to which the pine itself is wasted and injured, causing the turpentine to run still slower, after having cut above the dry wood.

Another circumstance may be noticed, at periods of long-continued bad weather, which is, that pines will, in chipping season, form a kind of gum or rosin at the scar, which keeps out the cool air and wet. If chipping is now discontinued until good weather sets in, the turpentine will then be found at the spot; this is the time to commence operations, and you will soon discover that, by the exercise of a little patience, you have realized the reward of a fourfold remuneration for your labor. Besides this, you will have the satisfaction to behold your pines in a sound and healthy condition, as well as of knowing that you have saved many expenses which, in the end, proves a gain of so much clear cash.

CURING SEASONED BOXES.

Season boxes are cut in November, December and January, and as, at this time, there is no circulation of sap, there is, of course, very little danger but that the wood will become seasoned a reasonable depth by chipping season; but the best method to secure their being well seasoned is, to keep the turpentine which accumulates by cutting dipped out, and also, so far as practicable, to expel the water which is left by rains. A practice has been adopted by some persons, which is decidedly injudicious, of pouring water into boxes as a means of ascertaining their size: by wetting the wood thus, they are prevented from seasoning as fast as is desirable. By careful observation, a man should be sufficient judge to tell whether a box is cut proportionate to the size of the pine, without a measure, and as soon as the weather becomes warm he should commence chipping, which lets the turpentine into the box. When spirits are made, this seasoned wood commences making lightwood as far as it is seasoned, which at the same time prevents it from going any farther down in the stump, and leaves the unseasoned wood green and soft below, thus aiding the land in preserving the health of the pine, and at the same time making more turpentine; and in order to have this well done, the turpentine should be dipped out as often as the nature of the case will admit, so as to assist the yield of turpentine by chipping, and receive the air by dipping. It should also be taken out clear from the bottom, as we know it sticks very fast.

This treatment should be continued until about the tenth of September, by which time the lightwood will be solid enough to serve as a protection to the tree through the winter; yet the box will require three years to become perfectly solid, when it may be known by the working of the turpentine, which will be stiff or soft alternately, as the weather is cold or hot. It requires as long a time to get a set of boxes solid enough to prove profitable, as it does to make land pay well by cultivation after it has been cleared and well managed. It is difficult to impress the truth of this on persons whose observation has not been directed to the fact. Wet and cool seasons are likely to prove unfavorable, as some pines will not be able to endure the changes of weather, which will sometimes destroy them: added to this, it may be observed, that boxes will sooner become solid on good land than they will on that which is poor; and when they are so, they are out of danger, so far as boxing and curing are concerned; the lightwood will not be deep, while it will serve the purpose, leaving the whole wood thrifty and green for the land to act upon.

We shall take further notice of well-seasoned barrel timber after it has been used for barrels: notwithstanding the spirits contained in the turpentine, it does not pass through the timber; the seasoned wood stops it, and it becomes solid on the inside; whereas the turpentine will go through barrels made of green timber, the whole stave and head becoming lightwood, which will require the action of considerable time to render solid.

CURING GREEN BOXES.

These boxes are either cut too soon in the fall or too late in the spring season: the former are cut while the sap is going down, in the months of September and October; and as the sap is tending downward, we may, of course, expect considerable turpentine to get in them by cutting. After the spirits are made, from the fact of the wood's being green and porous, the lightwood will shoot deeply down into the stumps, and in those that have none the wood will become dry on the outside, and have the appearance of seasoned wood, although in reality it is not so; the dryness is but shallow, and they will blotch, mildew, &c. Another result may be expected, namely, the death of the pines, at every change of the weather, and where they do not die, it will take five years to get them solid, by which time the stumps will be full of solid lightwood, which will operate as a preventive to the tree receiving the support which it otherwise would from the land. The better the land, too, so much the worse it is with the tree.

These appearances have not unfrequently led men to conclude there was no difference in land, and that the pines would give out in five years. There is, however, good reason for these things; for, as we see the box continues to have the air, we know it must get solid after awhile, besides which, the wood being lightwood while green, shows it will take a long time for them to become so. An oversight in this particular has been the occasion of many persons failing in

the business. Such pines will universally prove to be useless property; but, so long as they continue to live, and to show turpentine when chipped, the owners appear to feel satisfied. We should remember that the mere running of turpentine from the live pine is not all that is necessary; enough should be run to make it pay, and we ought to find out the best way to get at the strength of the land with the least possible labor.

Green boxes are more troublesome than any other kind, and where a man has been so unfortunate as to box at improper seasons, the best thing he can do will be to keep the turpentine and water out of them until April before chipping; that will assist in seasoning the wood; he should then stop the roundshave about the end of August, and empty the boxes clean. If he will then proceed for two more years in chipping in the same manner, he will undoubtedly effect a considerable improvement, yet, after all, they will not prove to be so valuable a set of boxes as they would have been had they been cut at the right time, and rightly managed.

The latter description of green boxes are those cut in February and March, which is too soon for them to season before chipping; and as the turpentine runs into the box and the spirits are made, the wood being green and porous, the lightwood shoots down deep into the stumps and roots of the pine. As the land gradually becomes warmer, and as the box obtains air, we know it will ultimately get solid; the lightwood, too, being green, will take a long time before it becomes so. Four or five years will thus elapse, by

which time the stumps are so universally full of light-wood, and that, moreover, so solid, that the owner begins to be impressed with the idea that there is a failure in his pines. There is nothing surprising about it, however, if he would only reflect that all reaction is nearly or quite prevented between the pine and the land, and that, in either case, there can be but little chance of making much. Here, then, is another opportunity for the conclusion that there is nothing to be made on turpentine.

I have sometimes thought, from the ignorance which I have seen displayed, that there were men who would be ready to box an oak if pine-straw were thrown upon its boughs. Very recently, I knew an instance of a gentleman suffering severely the consequences of a want of proper attention to this subject. I had made some remarks to him, on one occasion, with which he did not appear best pleased, but at length he informed me that he had begun to discover there was a failure in the pines.

The best way to manage these boxes is to keep the turpentine and water out until late in the month of April, before the roundshave is used, which affords a little time to season; then stop the roundshave about the first of September, leaving the box empty and clean, and proceed in the same way for three successive years. While you bear in mind that they will never pay so well as those which are boxed at the right season, you may be assured that it is the only safe method by which to receive the greatest benefit from such pines.

1st. Boxes cut in November, December and Janu-

ary are of less trouble than any others, and it is also the only season which will pay well to box pines.

2d. Those cut in September or October are the most troublesome.

3d. Those cut in February and March do not give so much trouble as those cut in September and October. The strong efforts of Nature have frequently aided us more in attaining success, despite our own folly, than we should ever have realized by our own exertions, and enabled us to assume a character for our knowledge in the business to which we had really but little claim.

The conclusion to which we are necessarily led by the above facts is very clear, namely, that there is a right and wrong time for boxing pines as well as for every other description of work. Trees must as certainly require time to recover from their wounds as any thing else in which we recognize a living principle, which is proved by the fact that when our boxes become slick and hard the injuries have no effect on the turpentine. the moment they attain a state of solidity may readily be detected, as the turpentine will then not shrink or dry, and the weather alone will indicate any effect upon it.

TURPENTINE, SPIRITS AND LIGHTWOOD.

It will be necessary, in treating of these articles, to take them separately, in the order mentioned, by which means we shall find that one fact confirms another, in the same way that they are naturally pointed out.

1. Turpentine is a kind of sticky mucilage, partly composed of water; it is drawn from the pine by making scars sufficiently deep to pass through the bark to the wood, in any way, either naturally or artificially.

2. Spirits of turpentine is made by the action of the air coming in contact with the turpentine, requiring a period of about six days to attain perfection: a longer time is necessary in cool weather than in warm. It is separated from the turpentine by distilling, as the result of which process we obtain water, rosin and spirits.

3. Lightwood is produced by the soaking or penetrating of the spirits through the pine; it will be found wherever there is a scar on the living wood, or in it, and also where there is a dead limb. Sometimes it is discovered deep in the timber, which is occasioned by the wood's growing over the scar. Whenever a pine is found without a scar or a decayed limb, or any other evidences of decay about it, there will be found no lightwood; but however small may be the tree, if there is a damaged spot or scar, there will also be the lightwood. It will be observed, also, that the better the land, so much the deeper and richer will be the lightwood; sometimes, indeed, sufficient to kill the pine.

If an ax were stuck in a pine, and, on its removal, the wounded part were to be immediately covered up, so as to preclude the possibility of the admission of air until the wood had grown over it, there would be no lightwood; but if the air should get to it, and stand for a sufficient length of time, lightwood would be made: then, if the wood were to grow over it before the lightwood became solid, thus producing what is known as 'green wood lightwood,' the turpentine would penetrate through it; but should the wood become seasoned, and the green wood grow over it, the turpentine certainly could not pass. This, I think, illustrates the use of seasoned boxes.

Some persons have asserted to me that they have seen where worms have cut through lightwood, never stating, however, that they have caught them in the act. With all possible deference to the opinions of those who believe this to be the case, I can assure them that it is a mistake. No worm can cut through lightwood; but, whenever it has been found in a perforated state, it has been made by the passage of the air through the worm holes, which will cause even the dust they pack behind to become so.

There is less lightwood made in November, December and January, than at any other time, for there is then less turpentine in the timber. The greatest quantity is made while the sap is going down, and a lesser in spring and summer.

All descriptions of scars should be avoided, except those made by labor, and even of those there should be as few as possible.

TWO OR MORE BOXES.

Pines should never have more than one box cut in them, and whenever two or more are cut, and it happens to be done at the wrong season, the lightwood will go from box to box in the course of a few years, and after it becomes solid, which will be about five years, then the land has no chance of showing whether it is good or bad. In such cases, as the pines do not die, but continue to run a little, we are disposed to think that all is right, for the simple reason that turpentine runs when we chip. Many who have devoted themselves earnestly to the business of turpentine farming have been so deceived by these specious appearances, that they have been led despairingly to the conclusion that no one can live by it. The misfortune is aggravated by the fact that, while the land is itself better, the yield of turpentine is worse, and the loss consequently greater.

In the course of my experience, I have known many persons who have sunk thousands of dollars by their mistaken action in the above matter, and, in some instances, almost without their having the slightest idea to what cause the falling off was traceable. Added to the depreciated quantity of turpentine, which is apparent, may be noticed, that the burs of the pines hang to their boughs from year to year, and also that the pines drop off and die at every change of weather. Another, and perhaps plainer evidence is, that, as the face goes up, we know the pines get smaller, and leave less of the natural surface to cut; and if we try to avoid it,

by continuing the scarred surface the same width, it will not only leave less of the natural surface, but will run the faces together, thereby leaving nothing for the land to support the pine upon.

It is by dint of these accumulated evils that labor engaged in the making of turpentine is oftentimes so poorly remunerated, from which some men are led to resolve that it is merely a chance business. This betrays a weakness, and a want of that proper observation of the works of Nature which teaches us that her movements are gradual, yet certain. Such resolutions are too often arrived at as a consequence of our own conduct: as every thing was undoubtedly made to be good, and these means are given to us by our Maker, we should study to discover the best use or the more proper way to develop its value for our support.

The idea of a pine being large enough to hold two or more boxes is not the question; the land must have enough of its natural surface to support the pine and, at the same time, furnish you support. It is simply ridiculous to say we cannot live by it, while we continue to act in a way that must necessarily prevent the attainment of our own desires.

The best way to manage pines which have been over boxed is to wait until the warm weather is well set in, then commence chipping, and stop early.

ONE BOX.

When a piece of work of any description is commenced, it will readily be admitted that it is the best policy to push it forward to completion in such a manner that it will not only be suitable for the purposes for which it is intended, but also prove profitable to those who are engaged in its construction. In cutting more than one box, because we have the room to do so, we do not comply with the dictates of this self-evident proposition, as the result is often ruinous to both.

In the year 1853 I had a few boxes cut, and, judging from what I thought the number of the pines, I desired the hands to cut them in so many days. In consequence of this instruction, many of the pines had but one box cut in them, and these were found to fill their boxes better, with less chipping, than any others. The faces of the pines with one box, after a few years, were much shorter, the trees were more thrifty, and the extremities sounder than the rest; and if I had caused those boxes to be dipped out, they would have filled one more time in the course of a season than those of the pines with two or more boxes; besides which, they would stand the different changes of the weather better, and make thicker hard turpentine and more mast than the others; they would also discharge their burs regularly. It may also be remarked, that in all cases where pines had to be missed on account of being full, they had but one box.

It is a great error to fill a pine with boxes because

it is large; it is far better to cut one box, of a size proportioned to that of the tree, which would allow a hand considerably more good land to work on, and at the same time he could chip two pines that stood near together in as little time as he could twist and turn round a large pine which had more than one box. Added to this, the box is so much better supported, which gives more value to the labor expended in chipping, while there is no danger in reducing it. Moreover, it will give more dippings to the season, and leave a healthy forest, thereby preserving the timber better.

Another consideration of some importance is worthy of attention: a pine takes a long time to grow, and when well grown and of a good age and size, the timber is very valuable. They cannot grow sufficiently in one man's lifetime to be of much profit, but, of course, every one that dies is a loss to the owner.

Again: the lightwood will not go so deep in those one-boxed pines, as there is no opposite scar to assist in drawing it through; and as the tree has so much of its natural surface, there is a better chance for the land sending up the turpentine. As a larger quantity ascends, we must find a greater quantity coursing its way to the boxes, which makes the labor still more valuable.

It may be urged that two or more boxes will cause the pines to bear more, and let us have more from a smaller quantity of land; but it should also be remembered that increasing the number of boxes has occasioned the death of many pines, besides leaving the large quantity of dry and dead faces in those that do

not die, which prevents their running a sufficient quantity to remunerate the labor.

When all these things are considered, it need not be matter of much surprise that many are found who will abuse the business. Reminded by the ancient adage, that 'a bird in the hand is worth two in the bush,' we should, when we have live pines, endeavor to keep them so, for their value is to be found as well in the future as at the present. When we have ten thousand boxes, they should be supported by ten thousand pines; then we should have some dependence. A well-supported set of boxes, able to yield what we have a right to expect from them, may well be compared to a well-fed horse, who is always ready and able; and when those box faces are run out, the forest will be alive and healthy.

ADDITIONAL BOXES.

These boxes are cut about here and there in pines that have a space left in them between the scars made by labor. I paid, on one occasion, four dollars per week for a hand to cut boxes about in my labor pines wherever there was space for them. At that time, I was, of course, under the impression it would pay, but I found that I was very much mistaken. Even admitting that a man had space enough on his pines to cut new boxes here and there among the old ones on which he had been laboring, with a view to increase the quantity or to obtain a greater amount of turpen-

tine at a dipping than he had previously obtained, it would only prove a momentary benefit. Apparently, the addition would be such, that he would be led to fancy he had derived great benefit from it. While the old labors were not as productive as they had been, the difference would be scarcely perceptible. By continuing the old workings, the new ones would not pay as well as if the old were stopped. The alteration, however, would prevent an accurate discernment of all the facts for a time, until, after a few years, it is discovered that the pines have given out; they are found to be dying here and there about the forest, the bugs and flies taking their flight from one to the other, and the cutting worm driving his bill, birds pecking and bark falling, which conveys the idea of a number of vultures holding their revels over a decayed carcass.

Experience has long since convinced me that it is by far the best way never to cut an additional box until the first one is worn out; for, as sure as it is done, the result will be a smaller quantity of turpentine and death in a short time.

An instance passed under my notice not very long since, where a piece of land made eleven barrels from the number of original boxes which it had upon it; after a while, a lot of new ones were added, the effect of which was an increase of the quantity to eighteen barrels. At first sight, this looked very encouraging, but on closer observation it was found that there was not near the same quantity of old ones filled that there was before the new ones were introduced. Added to this, there were sufficient additional boxes to have

made double the former quantity, and yet, in the space of three years thereafter, there were so many died, as to leave no chance of profit by attending to the others, while that part of the forest in which no change had been made by additional boxes lost no pines, and is still healthy. This, I think, looks like spending the dollar to get a shilling.

I would, therefore, earnestly advise those who intend pursuing the business, to avoid the practice, as it will certainly lead to what may be classed among the artificial obstructions, which more frequently operate as a drawback on our success, than those produced by Nature, to whom the fault is, however, more frequently attributed.

CUTTING OVER BOXES.

Another of the injurious practices prevailing in the pursuit of turpentine farming is that of cutting over boxes. The eager desire to obtain money, which has stimulated the mind of man to every description of experiment, has suggested that this might prove a source of profit. Those who have tried it, however, have discovered that it resulted rather in loss than in a gain. As is the case with additional boxes, we ought to remember that when a box is solid the turpentine works with the weather, and that it protects the pine, while the turpentine is safe, and there is no loss likely to accrue in that respect. If cutting over be resorted to at all, it should, at least, be done before they get

solid, for after that the turpentine will shrink, as it does in new ones, and the balance of the wood round the box will be so killed with lightwood that there is not sufficient natural substance about it to assist in curing, which will finally result in the disease of some and death of many others of the pines. Every box should be cut large enough at the first cutting.

What new wood grows down in the corners of a box should be cut out at the time prescribed under the head of 'Cutting Boxes,' care being taken not to cut any of the old scar over, but merely to take out the new wood gently, and at the same time avoid bruising or otherwise injuring the tree.

Another objection to cutting over boxes (or, as may, perhaps, be more properly called re-cutting), may be found in the dictates of common sense, from which we learn, that whatever wounds are inflicted must depend upon Nature for the necessary strength to assist in their recovery; consequently, we should avoid making our demands for her support too frequent, as by so doing we shall ultimately find that we have required more than we can obtain. A little more attention to an old-fashioned axiom—'Look before you leap!'—would prove of infinitely more value than constant appeals to Nature to relieve us from difficulties which the exercise of only a moderate share of the powers of reflection with which she has endowed us would have prevented.

CORNERING BOXES.

This practice has been resorted to without a due consideration, or, indeed, a knowledge, of the effects which we should find to arise from it. After cutting the box, it is commonly allowed to stand until warm weather, when some have thought that cornering may well be substituted for a chipping, under the impression that it helps us to fill our boxes: no doubt it does fill many, and assists others in filling; but, besides doing this, it leaves a chip to sour around our pine just at the time the cutting insect is approaching, and furnishes a green corner to our box through which spirits pass in with lightning speed and make deep lightwood: if this should fail to be a consequence, it would certainly afford a moist or sour corner, by which the cutting worm may enter and perforate through the pine, thus filling the whole stump with solid lightwood. It is only when pines so affected are blown or cut down, that we can discover that the worm has pierced them through; this, however, will not occur with some in a lifetime, and the turpentine will run every time we chip, upon which we are apt to feel satisfied that all is right. Occasionally we find one die, sometimes eight or ten in a bunch, while at every change of weather some will be dropping off. Many that stand where the land is good are nearly choked with lightwood, forewarning their owners of the necessity for the application of the roundshave.

Four or five years have passed when we begin to discover that the pines have given out. All we have

to communicate to our friends is, that, to obtain a little turpentine by cornering in the warm days of spring, we have ruined a set of valuable boxes—spent dollars to obtain shillings. I have positively known the worms to ascend as high as a man's head, which has been occasioned by the practice of merely cornering boxes. The cutting insect exists on the live and sour moisture, either of which will support him. (See article under the head 'Insects.')

Cases sometimes occur where the pines do not die, but continue their growth outside the old trunk: we are thus led to feel satisfied, so long as the signs of life are apparent, while we are, in fact, imposing upon ourselves a secret tax. Simple as this statement may appear, it has been the means of preventing many from procuring adequate support for their families, and whoever perseveres in the delusion will assuredly discover that he has been mistaken.

Another view may be presented in opposition to the practice of delaying to corner the boxes at the time they are cut: more time will certainly be wasted, and the hands will be likely to miss many that ought to be cornered. It may also be urged that it is introducing a new branch of business, which will occasion to the owner a neglect of other duties for what, in reality, he cannot realize one cent. Besides, the hands will not do it as well as they would at the time the box was cut: the lighter the hands are allowed to work, it will be observed, so much the more careless do they get.

Lastly: the corners of boxes require seasoning, as well as the box itself, and hence another advantage is

apparent by cornering at the time the box is cut, as it will then be ready for the roundshave.

The better the land and the weather may be, so much the greater the disadvantage, as, although the injury is great, it will, comparatively, be much less apparent.

CUTTING BOXES.

In the ordinary business of farming, if a man desires a piece of land cleared for the purpose of making corn, the size of the trees would not be considered, when selecting it, the quality of the land being the only criterion by which he would be guided; but an equal degree of prudence is not generally displayed by those who make turpentine farming their choice, as many will show a preference to pines which look the best, without any reference to the land. Here is an error committed, the consequence of which is, frequently, a prejudice that making turpentine will not pay; when, had it been discovered that the pines contained more water than they did turpentine, a different view of the subject would have been presented to the imagination. It is at times like these, that the minds of men have been influenced to desert the business, and, stimulated by the counsels of others, that they cannot succeed, determine to change their operations, and try growing corn, for which they can scarcely get anything; while, if the same care had been exercised that is usually adopted in all other descriptions of farming, the result

would have been materially different, and instead of the turpentine business being under-rated, it would be appreciated as one of the best employments to which a man could devote his attention with the certainty of reaping the fruits of his labor.

Various opinions prevailing as to the manner of cutting boxes, I will proceed to offer a few remarks from my experience in the matter. Cutting immediately at the surface is certainly wrong, as it is too much in the soft part of the wood, and takes too long to get solid; moreover, it drives the lightwood into the roots, makes trashy turpentine, and kills many of the pines, while at the same time it is just where the strength of the land gets to the pine, which should be kept sound and green.

Boxes should be cut from about the first of November until the last of January, as there is less turpentine in the pines at that season than any other; this will give time for the wood to season: they should be on the straightest side of the pine, and about twelve inches above the surface, so as to prevent the lightwood from going into the stump. No more ought to be cut that season. Only one box should be cut in each pine, and that in proportion to the size of the tree. After the ax enters the wood sufficiently to stump, turn the box down, so as to prevent the ax from going too near the heart of the tree. Hollow the box out well, and keep the edge level, so that it may fill all over alike. Wing the box at each corner, so as to take half the pine, including the box, then make a straight face across from the point of one wing to the other, which will be ready for straight

chipping. This should be done at the time of cutting, and particular care should be taken to throw the chips away from the pine. It sometimes happens that they will not season, the consequence of which will be that, in warm weather, they will sour and bring the worm.

Before commencing to cut the boxes, it will be found advantageous to have some good barrels ready at hand, for the purpose of receiving the turpentine that flows into them at the time of cutting, so that they may be afforded time to become seasoned by the air. If the pine did not run at all, in such cases, it would be preferable, but as it is natural, we had better be prepared for it. By removing the turpentine from the boxes that have it, the wood has a chance of seasoning equally with those which have none; and in the spring season, when the weather becomes warm enough for chipping, this seasoned wood dries the turpentine before it can make the spirits, which is very desirable, and also stops the lightwood from running deeper than it is seasoned.

When the boxes become solid, then it is that we shall find our land is paying us, besides which we shall have green, healthy pines, green stumps, green bodies, and our boxes sufficiently high for us to dip easily and keep out trash.

It is worth three hundred dollars to cut a set of round pine boxes.

BACK BOXES.

The cutting of back boxes should always be avoided until after the others are worn out, and it would be far the best to wait for two or three years if it is convenient so to do. Cut them in the middle of the space left, and corner them above. These boxes ought not to be winged, as it takes too much natural surface, half of which has been consumed by the original working. Be careful to throw the chips some distance off from the pines, lest they should not get seasoned before it is time for chipping. In cornering, make the face straight from corner to corner, for strait chipping, and this should be done at the time the boxes are cut: be careful also to keep the turpentine dipped out which gets in by chipping. Directions as to the proper time for cutting will be found under the caption of 'Cutting Boxes.'

Some persons have entertained an opinion that pines are not worth backing, but in this they are decidedly mistaken, for I have made thousands of dollars on them. They will make two-thirds the quantity of hard turpentine to that of soft, but, if they are properly managed, round pines will make equal portions of each quality.

It is worth two hundred dollars to cut a set of back boxes.

CHIPPING PINES.

When the weather appears to open moderately warm will be found to be a good time to commence chipping. Let the roundshave enter the wood deep, and continue so until it has passed entirely across from wing to wing. It should be straight across the grain of the wood, as the scar is then less exposed to heat and cold winds and rains, which affords the turpentine a better chance of running longer, from its not being so much exposed. Continue this for one time every week, keeping the edges of the face deep and straight; and should the face get so high that they cannot, in consequence, be chipped direct across the grain (which, however, will require several years), let the slope be as little as possible, and have the point of the natural surface immediately over the box. Never cut more than an eighth of an inch at one time, as the turpentine will discharge as freely from that as though a foot had been cut off; besides, the thin chip seasons before it gets sour, while, in damp weather, the thick chip will not do so, and the consequence will be numbers of flies, and also worms in the pines. The tenth of September is quite late enough for chipping.

Straight chipping was approved of by the late William Huggins, Esq., of Jones county (N. C.), and James McDaniel, Esq.: it is a little more labor for the hands, but the result of my experience is that it makes more, the scars not being so much exposed.

LARGE AND SMALL CHIPS.

A variety of opinions have prevailed upon this subject, from time to time, among those who have been engaged in the business of turpentine farming. It makes no difference how large or how small the chip is cut, or how far it reaches up, the same grain is cut in either case, and, as soon as the wound is inflicted, Nature commences her healing operations, by sending up the turpentine to the injured spot, in sufficient quantities to effect a cure, and nothing more. If, then, a large chip be taken off, the turpentine must go with it; besides, if the weather should happen to be warm and damp, the chip will sour before it seasons, and the fly, by coming to this sour chip, will cause the black worm in the pine; it will also be the means of drawing the bug, and putting the cutting, or circle worm into the tree. Besides these disadvantages, it will not unfrequently cause the death of the pines, or at least, by the rapid manner in which they cut away the wood, soon render them useless for working, thus winding up the business, and making less turpentine in the same period of time.

I have sometimes noticed that hands, when working with the roundshave, would cut off chips so large that, on reaching the ground, they could be heard for some distance, as if some large chunk had fallen from the top of the forest. The thin chip just reaches the turpentine, which occasions it to run freely, and thus it becomes seasoned before it can possibly sour, and no fly or bug comes to it; added to this, it is certainly

done more easily, makes more turpentine, and the pines last much longer. In fact, pines ought to last for twenty-five years with their first boxes, as there is nothing more requisite than to pass the air-dried part of the wood, which is not over the twenty-fifth part of an inch in all cases where good management has prevailed; and, at the farthest calculation, three inches of wood to the year is abundant.

There is yet another consideration worthy of notice: where a man is possessed of a piece of land from which he can obtain, by the labor of one hand, two barrels of soft turpentine per day, and that bringing three dollars per barrel, besides the hard, it is clearly six dollars a day per hand, as the hard will pay the expenses. But you may rest assured that no such amount will ever be realized if large chips are cut, and such land is not to be met with at all times.

DEEP AND SHALLOW CHIPPING.

With a view to a full investigation of this subject, I have resolved to examine everything connected with it, in order, if possible, to arrive at the most advantageous method.

1. Deep chipping means to go toward the heart, but it has never made the turpentine by the mere stroke of the roundshave; that which has been represented as ninety parts of the turpentine, runs immediately where the wood and inside bark comes together, and shows the value of that kind of work (see observa-

tions under the caption of 'Thick-Sapped Pines'); but in every instance it is best, for it not only cuts the tender bark smoother, but prevents sourness around the edges of the face, and causes the hard turpentine to stick longer on the wood, as there is more water passes up the sap than there is up the heart. The deep chip is a preventive, as we see it leaves less sap. I submit the matter, however, to the judgment of others.

2. Shallow chipping means to come near the outside with the stroke of the roundshave, which makes tough work, and causes sourness along the edges of the face, by the roundshave leaving the tender bark half cut through, which enables the black worm to work immediately. I have seen them bore through a small piece of tender bark not longer than an inch, where the roundshave was not entered deep, besides which it leaves the sap so that a large quantity of water may pass up, and throw off the turpentine.

TIME FOR CHIPPING.

The prevalent notion of most persons is, that the best time for chipping is when the weather is warm, regardless of the season of the year, and some will put on as many as thirty-five chippings, which requires 210 days, while there is but 156 days to the longest season, and the shortest will only amount to 126. Everything must have its results, and this large quantity of chippings over that which is naturally re-

quired demonstrates the fact that, by filling the pines full of dead faces and white dry wood, the yield of turpentine becomes lessened every year; but, as the trees do not die instantly, and turpentine continues to run, the owner appears to be satisfied. After a few years, however, the quantity becomes so alarmingly small, that he begins to think the business is naturally of a short duration; never, for a moment, supposing that the failure of the pine is occasioned by his own act, in having taken more chippings than the natural strength of the tree would permit.

The consequence of this error is very commonly a conclusion against the business. Had the time which was spent in ruining the pines been occupied in making barrels, or in any other labor which would have saved expenses, a different impression would have been the result, and the land would certainly prove itself worth something yet.

Twenty-six weeks is the longest season, and may be reckoned from the tenth of March until the tenth of September. Never chip any longer, as the sap will start down. The pines should be freed from labor, to allow them to make lightwood; besides, the more time they have allowed them for rest in autumn the better. They will pay the following year, and when they are chipped in spring the color of the wood will change quickly, which is an indication that all is well, and turpentine is running. When chipping is again commenced, the weather should be thoroughly warm, and whenever a change to cold take place, it would certainly be found the best way to desist until the weather becomes more suitable, and stop again when-

ever it returns to cold. The time can always be filled up so as to make expenses, and you will certainly get time for twenty-one chippings before the sap starts down, which is twenty-one weeks (126 days). In short, the time to commence chipping cannot be positively stated, as it must always be dependent on the weather setting in warm; but there is certainly a time to stop, which is about the tenth of September, and every turpentine farmer should make it his business to suit the time. When that time arrives, the hard turpentine should be taken off and the soft dipped out while it is rich and good; this will clear the turpentine from the pines, and prevent the spirits from shooting through them in different directions, and thereby making deep solid lightwood, which I can assure my readers will certainly be the case.

NATURAL QUANTITY OF CHIPPINGS.

Time was when farmers could only make corn with from five to seven plowings, while now-a-days they are impressed with the belief that three are quite as much as are necessary. But no such improved order of things are found to aid the turpentine farmer. To enumerate the different qualities of land, upon which success so materially depends, would require more of our space than would prove of general utility, and I will therefore classify them under four numbers, which may be easily understood, being designated by their numerical order, as follows:

No. 1. We will commence to illustrate the different qualities of land by supposing a set of ten thousand boxes to each of them. This land will fill from ninety-three to ninety-six or ninety-eight hundred boxes in ten thousand, with five chippings, making seventy-two barrels of soft turpentine in thirty days. The only natural variation we find in this land is in the quantity of chippings, which may be increased by bad weather to seven, thus consuming forty-two days. It will be observed that, as the whole of this land is good, there will be no variation in dipping, because the boxes fill regularly, either fast or slow, according to the weather. In all the other qualities there will be a variation both in dipping and chipping, but this fills all the boxes, except such as are in unsound or crooked pines, twisting faces, or those that are either too young or too old.

No. 2. After five chippings have been put on this second quality of land, the pines have been found with so many empty and unfull boxes, that one more chipping is often resorted to even in good weather. It will fill from forty-five to seventy-five hundred boxes in ten thousand, according to the weather. The dipping will amount to from forty-five to fifty-five and sixty barrels, the latter quality in good and the former in bad weather. When it is extremely bad, eight chippings are required on this land, which is the most that Nature can well submit to.

No. 3. Seven chippings are necessary on land of this quality, as a lesser number will leave so many boxes unfilled. From three thousand to forty-five hundred in ten thousand will be filled. The dipping

will be from twenty-three barrels to thirty-five, the latter in good weather, and the former in bad. Nine chippings will sometimes be required when weather is extremely bad, and is all that Nature can allow.

No. 4. After five chippings have been put on this description of land, it has been found requisite at times to add three more. This number will fill from twenty-five to thirty-five hundred in ten thousand. The dipping will be from eighteen to twenty-one barrels, the latter in good and the former in bad weather. It will sometimes require eleven chippings for this land, which is the greatest that it can sustain.

In the above I have endeavored to show the quantity of chippings which it will be judicious to make on the respective qualities of land, as considered from a natural point of view, and regardless of any artificial obstructions whatever. The next subject in order will be the average amount of turpentine which may be expected to be obtained from each description of land, in both good and bad weather, which will be found in about the following ratio:

The first quality of land will make on round pine boxes from 288 down to 216 barrels of soft turpentine, and about the same quantity of hard. The other varieties will yield in accordance with the figures in the table annexed:

	SOFT.	HARD.
No. 1—Good weather	288	288
" —Bad "	216	216
No. 2—Good weather	240	240
" —Bad "	160	160
No. 3—Good weather	140	140
" —Bad "	92	92

	SOFT.	HARD.
No. 4—Good weather	84	84
" —Bad "	72	72

The prefixed are the only natural variations which I have ever discovered, farther than common wear: of course, the table does not furnish the precise amount that will be made, but the calculations will furnish the necessary rises and falls, so as to guide a man as to whether he is progressing successfully or otherwise. We might have four persons making turpentine on this four qualities of land, and each of them running the same risk in hiring of hands, without either of them knowing it: one will succeed in business, and the others not.

I have been thus explicit upon this subject for the purpose of elucidating our management of the chipping labor, separately from any artificial obstruction. For several years before I quit making turpentine, I changed my method of doing business, because it was apparent that the chipping labor was too much reduced at the latter part of each filling, and also, that the good spots of land would fill from two to three times before the poor ones would do so once, and that with the same quantity of chippings which the poor required for one filling. Consequently, I commenced with five chippings, taking the advantage of the grain of wood as well as the time and weather (see remarks under the head 'Grain of Wood'), and I found my chipping labor was worth about double; it was increased from two-thirds to one and one-third per day. This great difference will undoubtedly satisfy the reader who may have entertained doubts upon the subject

that it is unquestionably the right way, for it not only keeps the labor valuable that makes or draws out the turpentine, but it divides up the season better, and the only argument that can be adduced against it is, that the weather might be so bad that it would not do to dip the turpentine. In answer to this position, it may be remarked, that whatever kind of weather we may meet with at each dipping, we ought certainly to keep the making labor valuable, even should one dipping prove twice as large as another; by doing so, we are not only enabled to avail ourselves of whatever advantages are above enumerated, but our pines will be kept healthy, and turns them off just before the sap starts down, which prepares them for another season, and keeps up a regular operation of the labor systematically with the season. Bad weather is then of little importance (see observations under the head 'Time for Chipping'), and the hands are influenced to exert themselves to such an extent as results in manifest advantage.

We pass on to a comparison of this subject with an artificial quantity of chippings, by which it will be easy to show to what an excess of that kind of labor a man may reach before he is brought to any consideration of the matter.

ARTIFICIAL QUANTITY OF CHIPPINGS.

The result of my observations since I have devoted a strict attention to the subject of making turpentine has convinced me that there are more chippings made use of from artificial causes than there are from those which are natural, which is occasioned various ways, viz.: 1st, by raking and burning; 2d, by over boxing, and doing it too soon or too late. All these things combined operating against Nature, we may well expect to reap the reward in a depreciated quantity of turpentine. The first indication we receive is by the death of a few of the pines, causing the rest universally to run less and less every year; and thus the business is, from time to time, very nearly taken out of the hands of Nature, or at least so much so that we appear to assume nearly the entire control, doing as our own poor judgment dictates, forgetting that we are dependent beings, and capable of doing but little at the best. Let us proceed to make an examination of the facts.

No. 1.—This land naturally requires five chippings in good weather, which will make 72 barrels in thirty days; but after a lapse of five years, the very time when it ought to be paying best, we find that nine chippings are being put upon it, thus adding on twenty-four more days, which is one-third of the season, and the yield is only one barrel and a half per day, whereas the natural state of the land will make two and two-thirds barrels per day. Can any one say that this is not a great drawback to our prosperity? Is it

possible they cannot see, or will deny that they are themselves the cause of the diminution? or will they venture the assertion that the land is worn out? If it is so, then it is not worth while to box pines, for ten years would be sufficient to break any man on the best quality of land. With my labor, I have never found this to be the case, and consequently I invite an examination into the method I have adopted. The wood of a pine requires to be kept green, and the land needs its support yearly from the falling litter: then the boxes will be filled by the middle of April, otherwise it will take until the last of May or first of June, and after a while it will take the last of June or first of July to make the first dipping, thus showing a greater falling off to each day's work, and at the same time consuming nearly half of the season.

No. 2.—This land requires six chippings naturally in good weather, dipping 60 barrels in thirty-six days, but in five years we find ten chippings going on, thus adding on twenty-four more days, which is over one-third of the season, and making one barrel per day, whereas the natural state of the land will make a fraction more than one barrel and a half per day. Here is a lamentable falling off in this land.

No. 3.—This quality requires seven naturally in good weather, dipping 35 barrels in forty-two days, but in five years we find eleven chippings, and in some few cases fourteen, consuming more than half the season. It is unnecessary to pursue this subject farther, as the two first will show the comparative falling off, and each one is in proportion.

No. 4.—This land requires eight naturally in good

weather, dipping 21 barrels in forty-eight days, but in five years we find no less than thirteen chippings are going on, consuming two-thirds of the season. Further remarks upon this quality of land may also be dispensed with, as the annexed table will present at one view a complete comparative synopsis:

	WEB. DAYS.	ONE DIPPING.	SOFT.	HARD.
No. 1—Natural quantity 5 is 30 to a dipping, making 72 bbls.= 288 and 288 per ann.				
" Artificial do.	9 " 54	" " 72 " = 216	" 216	"
No. 2—Natural do.	6 " 36	" " 60 " = 246	" 246	"
" Artificial do.	10 " 60	" " 60 " = 180	" 180	"
No. 3—Natural do.	7 " 42	" " 35 " = 140	" 140	"
" Artificial do.	11 " 66	" " 29 " = 87	" 87	"
No. 4—Natural do.	8 " 48	" " 21 " = 84	" 84	"
" Artificial do.	15 " 90	" " 16 " = 48	" 48	"

This table affords ample proof of the consequences of our mismanagement, and that, too, at the time when we ought to commence realizing the profits of our land. The corn farmer, after he has devoted five years to the cultivation of his land, expects that he is about to obtain the reward of his exertions; and why is it not so with the turpentine farmer? The answer is easy; he burns, rakes and chips so late, that neither his land nor his pines are in their natural state: instead of ditching and turfing, as the corn farmer does, he is found burning, raking and chipping as long as there is a warm day in autumn, thus doing all he can to the injury of his own future prospects. The only plea he can possibly have for his conduct is, that the pines are alive and the turpentine runs. It is difficult to make some men believe that they can do wrong by chipping; and yet, if we were to continue the calculations for a few years longer, in the same ratio as those on the preceding page, we should find that all those who persisted in such error would have to stop business, as many have done before them.

Making a large dipping of turpentine appears to have been the point at which many have aimed, regardless altogether of the time it occupied. A friend of mine has at this time a set of boxes from which he dipped eighty-four barrels with five chippings, taking thirty days; the boxes are now five years old, and he is dipping only seventy barrels with ten chippings, taking sixty days, or over one-third of the season. This may safely be set down as five chippings from an artificial cause, and that is late chipping, and nothing else. By this and other causes combined, it is found

that the pines are now scarcely worth the chipping. The best way to effect an improvement in this state of things is by taking the pines through a regular process with the season (see remarks under the head of 'Time for Chipping'), which will restore them, and, in fact, bring up their yield to the original quantity.

FOUR TURPENTINE FARMERS.

My observation has frequently been attracted to men on occasions of sale or hiring of boxes at public vendue. There are a certain class who, if offered a set of boxes that will yield fifty barrels of turpentine, will bid up eagerly, regardless of the time it takes to make it, and without asking any farther questions. Next, offer them hands, and they will go on bidding without pausing for a moment's reflection as to consequences.

Let us now suppose four farmers commencing in the turpentine business, each one paying one hundred and fifty dollars apiece for hands, and each one having a set of boxes (ten thousand) holding seventy-two barrels to the set, which is an average size. Now, when the season commences, let them all commence chipping, putting the pines through a regular process with the season, which is five weeks to each dipping, for five chippings (30 days).

		ONE DIPPING.		SOFT.	HARD.	
A.'s land fills 4 times,	making	72	bbls.=	288 and	288	per ann.
B.'s " 3 "	"	54	" =216	"	216	"
C.'s " 2 "	"	36	" =144	"	144	"
D.'s " 1 time,	"	18	" = 72	"	72	"

Now, at the close of the season, the parties have dipped their boxes over four times. A. has dipped forty thousand boxes during the season, and has them all full: B. has done the same, and has but thirty thousand full ones after dipping forty thousand: C. has dipped forty thousand too, but he only gets twenty thousand full boxes for dipping the forty: D. does the same thing, and obtains only ten thousand boxes full for the dipping of forty thousand.

It may be remarked here, that while they have been chipping, the turpentine has run from all the pines, spreading all over the face, and thereby deceiving them. A. has thick turpentine and boxes full; B. next; C. next, and D. last; but the hire of the hands is the same on each man's land. A.'s land fills ten thousand boxes at a time; B.'s fills seventy-five hundred; C.'s fills five thousand, and D.'s twenty-five hundred at a time.

It will readily be seen, from this calculation, why D., and, after a little while, C., should pronounce that the turpentine had been a curse to the country. The mere possession of pines is not the only matter that should have absorbed their attention; the quality of the land was the desideratum by which they might have obtained better success: if the land is good wherever the pines are, the boxes will all be filled. After all, A.'s land does not fill the whole of his boxes, for the reason that he has more or less of unsound and crooked pines, twisting faces, and some others that are either too young or too old. With the exceptions here enumerated, his land fills all of his boxes. The same case is found with all land; but, from the dis-

advantages attendant on poverty, wet and turf, the other three men are doomed to experience considerable edpreciation in the return for their labors.

STRENGTH OF LAND.

Among the various qualities of land we find there is so much difference, that it becomes necessary we should have some method by which to test the relative properties of each. We will suppose four hands to be chipping on land of different qualities, each one having ten thousand boxes, holding seventy-two barrels each, which is about their average size. Let these hands chip for five weeks (thirty days); say the first dips 72 barrels, second 54, third 36, and the fourth dips 18 barrels. The following values would be correct:

The first hand's land might be called			2 2-5th	bbl. land.
The second	"	"	1 4-5th	do.
The third	"	"	1 1-5th	do.
The fourth	"	"	1-5th	do.

I believe that no safer or more certain rule can be found than this, by which to ascertain the strength of a piece of land: it shows how much good land one hand has over another; also, how many boxes one piece fills over the other. In making two or more dippings, if the weather is the same each time while chipping, and there is a variation in the dipping, the fault is in the hands, either in dipping or chipping; in other words, they have either chipped better at one time than they have at another, or they have dipped

the turpentine cleaner at one time than they have at another. Again: if bad weather prevails at one time more than it does at others, while chipping, there will certainly be a variation in the dipping. This is a fact which I have always considered judicious to be kept from the knowledge of the hands; for, should they once get an idea into their heads that you are in expectation of a less quantity on account of the bad weather, they will be certain to slight the work, and still farther lessen the quantity. I have remarked that negroes are universally ignorant of this, although they are conscious of some difference in the dipping. It is well to manage so as to get along without blaming them, urging them to try and do better next time: if, however, the fault lies with them, they should always be made to know it.

At the time I followed the turpentine business, I was always able to tell to a barrel what my land had made in any change of weather, and I would have just the number of barrels hooped off that was necessary, and no more.

By strict attention to business, it is easy for any man to acquire a knowledge of what his land is, and how many boxes it will fill with each description of weather. It should be borne in mind that dipping and filling are two things: some spots will not fill at any time, and the object is to keep the chipping labor valuable. Whenever a man obtains three barrels per day, or nearly so, his hands are chipping over ten thousand per week, provided he is working by the original rule of making turpentine.

LAND AND PINES.

It may be observed, in relation to the turpentine business, that there are as many things to be considered as in many others with which we are better acquainted. Knowledge on the subject can be obtained only by degrees, and from time to time, by the united experience of those engaged in it being communicated. In a conversation once with J. M. Oliver, Esq., of Craven county, N. C., he remarked that the time had been when it was thought that no other part of the country would make turpentine but North Carolina; 'but,' said he, 'so far from that being the case, we find at this time that there are several of the southern States engaged in its production.'

At another time, H. J. Lovick, Esq., of the same county, stated to me that he did not think it made any difference about the land, so the pines were all right; but this gentleman's opinion was destined to undergo considerable change, as he now believes the land to be the most important consideration.

Among the natural considerations worthy of notice the age of the trees may be mentioned. When pines are young, thrifty and strong, they have more effect on the land than the land has upon them, notwithstanding they are supported by the land; while they have that effect, the land will not make much turpentine. Several causes, both natural and artificial, contribute to transfer the power from the pines to the land. The first natural cause is, that the pines may be so thickly settled that one will operate against the other,

causing the whole bunch to give way, for the distance, probably, of miles in the forest. When this is the case, the pines are then ready for boxing; the land has then the most effect, and will make turpentine, as there is more of its strength thrown upon the outside of the tree than there was before.

The next natural cause is old age, but this is not overmuch. This happens where pines are thinly settled. Pines should be boxed before they get too old; it is immaterial about their size in this respect.

All other natural causes affecting the one will operate against both land and pines, and among which may be mentioned wet and turf of any description. This may be prevented by ditching and turfing, which will contribute equally to the advantage of both.

We come now to the artificial prevention of the power which the pines have possessed over the land. This is effected by both boxing and chipping, but when it arises from boxing the effect takes place immediately, which shows that the pines were nearly old enough. This may be seen by the land making scarcely anything the first year, and in the next producing a large quantity; that is, doing nearly as well the second year as they will ever do. It is preferable that the pines should be old enough before they are boxed.

The next artificial cause is chipping, or common wear, which produces so much scarred surface that the effect of the land has to come more on the outside of the wood than the inside. Sometimes the pines are so young that the scarred surface will be run out, and the pines abandoned before their effect is perceivable;

at others, it will take place in a few years; and again, at other times, just before they are worn out. This can be seen by noticing the quantity of turpentine the land yields in one year more than it does in another. An additional evidence is found in the fact that the undergrowth will begin to grow rapily, such as bushes of any kind, or turf: this growth should be stopped, otherwise it will become so thick and strong that the land will be prevented thereby from paying well. It is frequently the case, where a forest is open at first, that it will, in a few years, become very thick with undergrowth: this draws the strength of the land very much from the pines, and induces many in the business to think the pines had worn nearly out, or, at any rate, would not pay sufficiently to continue working. I have known many pines to be set aside from this cause which were worth more than others that had been newly boxed.

GRAIN OF WOOD.

At the time when pines bud out, in the spring season, they form a grain, or circle, which is the process by which more wood is added. This first is a soft circle, after which a hard one follows. The two are made from one budding, but it requires eight weeks to complete both, four weeks to each. This will take until May, late or early, according to the season, when they bud out again and again, in June or July, and complete about the tenth of September. This makes

twenty-four weeks the wood of a pine is growing, and two weeks for it to harden, having the hard circle on the outside, to serve for protection in winter.

In the course of twenty-six weeks there are six changes of the moon, and I find that turpentine is made principally in three weeks out of every four. Where five chippings are made use of alone it can be easily perceived, more particularly if the weather is good, which rules the quantity at any time. I will not undertake to assert that the moon exercises a controling influence, which, however, is probable, but I know that there is one week in every four that pines do not make so much as in the others, and that is about the time of the completion of each circle, which is every four weeks (twenty-eight days). It is also observable that, in putting on five chippings, the three weeks will occur the first three in five, sometimes the last three, and at others the second, third and fourth weeks, leaving the first and last weeks to make but little. It is for this reason that I contend the round-shave should not be stopped for dipping, unless in cases of bad weather.

These facts demonstrate that turpentine is made in little time, and that one chipping, on some occasions, is worth two or more at others. Now, if the land was put in good order, the turpentine would have to be dipped in four weeks, which would be five times in twenty weeks, and thus allow a period of entirely warm weather to save all the turpentine, and turn off the pines freed from labor. The greatest benefit is secured to pines in permitting them to rest during the warm weather of autumn, which is more propitious

than any other season of the year. While laboring, I have made many dippings by availing myself of the advantage afforded by the weather and the grain of wood in four weeks, making the days' work realize double what it proved at other times, thus enabling me to effect great reduction in my expenses.

QUICK CHANGES.

The changes which take place in the color of the wood appear to me to deserve some attention, and, after some deliberation, I have concluded to devote an article to the subject. Where pines are well managed, the color of the wood will change quick at the place where they are chipped. This indicates that everything is progressing rightly. It will look white when chipped, but will soon change to its old appearance, or season color. At this time the turpentine will discharge freely, and a watchful care will be necessary in attending to the hands, or the cunning old negroes will frequently neglect to chip the pines regularly. They may be detected by looking on the surface for the chip which has lately fallen, as that will retain its new color long enough to enable you to discover whether the tree has been recently chipped or not.

E. Perry, Esq., of Jones county, N. C., was of the opinion, at one period, that he was better remunerated when the wood stood white for a long time, and he was consequently pleased to see it; now, however, he says that bad weather will occasion the wood to stand too

long white, and chipping should then be stopped until better weather. Sometimes the changes of color will be rapid in bad weather, which shows there is no injury going on, though the turpentine will not run free, and it may be as necessary to stop chipping on that account as on any other. The exercise of a discretionary judgment, on the part of the owners, may be advisable, as it may somewhat depend on other influences, namely, the situation and pressure of his business, whether it would pay better than anything else to continue, &c.

Where there are many artificial obstructions, there is little use for the consideration of this subject, as the operations of Nature are prevented from going on to their full extent, and in such cases a man might not find it out in his lifetime, while at the same time it is of the utmost importance to his interest.

RESTING PINES.

An opinion has prevailed with some persons that chipping pines every other year would prove more profitable than to chip them every year. C. Sanders, Esq., of Craven county, N. C., stated to me, on one occasion, that he had bought fifteen hundred dollars' worth of turpentine on a set of boxes that season from one man, and he advised him to rest them every other year, as he thought that it would pay. In my humble opinion, this is a mistake, because it would cause the wood at the chipping spot above to become solid light-

wood, and it will give occasion for the cutting too much wood the next year; that does not pay; and the face or scarred surface becomes dry and cracks, blotching up black with the weather; also, the box gets trashy and blotches. On the other hand, if they were tended every year, the face would be clean and without cracks; besides, we have a coat of leaves and straw every year to support the pines.

If a man is desirous of indulging his pines, he may fill his boxes once or twice during the season, to keep them in order, but should rest them in no other way; otherwise, turn them off entirely.

AGE AND VALUE.

The greatest value of a set of boxes is when they get to be three years old, or any time after they get to be solid; but to give them their proper value, so far as the box is concerned, cannot be done, for the older it gets the more solid it becomes, and the more money it is worth: the land pays best, however, after the box gets solid, so that it will not soak up the turpentine.

When chipping is commenced on the faces, it is called 'hacking boxes'; it should be named 'hacking pines.' This should be carried on until the face or scarred surface got to the height of a man's shoulders, when they ought to be pulled. Some hands will pull sooner, but this should not be allowed, because it cuts more wood to pull them low than it does to hack; the motive for doing so is to run them up in a manner to

avoid the necessity of stooping. Hacking is to strike with the tool, and it requires a slight stoop to cut the right quantity, and do it well. I have found it necessary to threaten some hands before I could get them to hack my low faces. 'Pulling boxes,' would more properly be styled 'pulling pines,' as we know that the box is neither pulled nor hacked. This means to put the tool against the pine, and place both strength and weight against it, which forces off the chip, and after the face gets eight or ten feet high, the value will begin to lessen; the pine gets smaller, and a hand cannot chip so many: neither will the land make so much, and they cannot save so much of the turpentine per day, besides which the rains wash it off more easily.

Land that will make two barrels per day at first, will wear out a set of pines with good management, and make a barrel per day the last year. A set will last for twenty years. The safest and, indeed, the only safe way to arrive at the value of a set of boxes, is to be governed by the days' work chipping. If we have a set of boxes, and the land will make half a barrel per day of soft turpentine—equal to one hundred and fifty-six barrels of hard and soft per year,—they will be worth $750, which would be $375 to each barrel of hard and soft turpentine. No man can say this would not be cheap. If the land would assist the boxes sufficiently to make them yield up to one barrel of soft per day, they would be worth $1500, and if two barrels, $3000, and so on; the higher the quantity, the more the boxes will be worth.

Some men are fortunate enough to hold land which, with a set of well-cut boxes on it, would be worth a

four-horse farm: one hand can do the making labor on the set of boxes with a small piece of steel fastened to a stick, which eats no corn and fodder. On the other hand, consider what the four horses would eat, while making, preparing and saving.

I once had five days' chipping of boxes where the land on which the pines stood made two and one-third barrels per day, and in the year 1855 it made nearly three barrels per day: the quantity they dipped was fifty-eight barrels and a half, with five chippings, or twenty-five days' work; but in 1855 they made it with four chippings, which was fifty-eight and a half barrels for twenty days' work: as three times twenty would have been sixty, it only lacked one barrel and a half in the dipping to make three barrels per day. These pines were burned up.

Turpentine sold in that year for three dollars and sixty-five cents per barrel; if, therefore, the amount of hard turpentine be set down at two-thirds the quantity of soft turpentine, which would have cost but sixty days' chipping through the season, the net sum would have been about $966 40 cents. Good as this may seem, it is, nevertheless, but little compared to what some men might do, in this region of country, if they only knew how to improve the advantages they possess. In other States, persons are doing better.

While valuing a set of boxes, it may be well to refer to an article under the caption 'Land and Pines.'

STOP THE ROUNDSHAVE.

Various circumstances may be taken into consideration in relation to this subject, tending to affect the views of different persons, as, for instance, the situation of a man's business, the prices of produce and turpentine, &c. There are those who contend that it is best to stop the roundshave and dip the turpentine, as they incline to the belief that it makes the turpentine run better, for the reason that the pines are freed from the operations of labor during the week or two that it requires to dip out the turpentine. If there are any other reasons, I have never heard them assigned. A friend of mine, D. Williamson, Esq., was of the opinion that it was good, because the turpentine run better after it; but that is only the case for one chipping, after which it will require two or three weeks to get it to running regularly again. It appears that so much is settled down by the resting, that when the roundshave goes on, it pours out so suddenly, that the grain of wood catches air, which causes the two other chippings to be of little value afterwards.

Another objection may, I think, be urged, which is, that if the weather should happen to become better daily, it would be probable that the two weeks during which the roundshave was stopped might be really worth more than the four or five chippings which had passed. In this case, it would be better to furnish a hand to dip. It may further be observed, that it is not merely taking advantage of the season, but it has the effect to keep the pines healthy. An observation

on the improvement in the growth of corn at such times would go some way in establishing this point.

On one occasion I had two hands chipping on land of the same quality, and one dipped after the other: one of them hit the good weather every time, while the other had always bad for his dipping, and he that dipped in the bad weather made the most by seven barrels each time. The next season I worked them both alike, attending to my own business, and on that occasion there was no difference between them.

When it is apparent that the weather is getting worse, I admit it is best to stop the roundshave, but in no other case, so long as it continues to be the desire of the owner to make the most he can. Some may consider this a trifling matter, but if they will try it, the appearance of the turpentine will certainly prove a convincing argument, particularly if the love of money should have any influence in moulding their conclusions. In my own experience, I have managed to add as much as forty-two dollars to the dipping by it, and I can assure the reader I did not experience the slightest inconvenience in fobbing it.

It would be better sometimes to stop a hand, both from chipping and dipping, than to lose the advantages presented to their view on certain occasions.

SPRING MANAGEMENT.

When chipping has been commenced in spring, and has gone on for three or four weeks, and there is a return of cool weather, which is sometimes the case, it will be judicious, finding that the good spots have full boxes, to make a false dipping; by that time, there will probably be a return of good weather, when the pines will be all ready for chipping. By adopting this plan, we make two valuable and two false dippings, and turn off our pines in a healthy state. It may, perhaps, be asked, why go to all this trouble? The solution of the query is easy: it allows the dipping to be done in bad weather, and reserves the chipping for better weather; besides, it prevents the cool air from getting into the pines, which would dry the wood, and prevent the turpentine from running when the weather becomes good. Moreover, there is very little to be made by chipping in bad weather, and not unfrequently it will cut short the whole season's work, cutting short every dipping, when we are very apt to hear the hackneyed expression, so peculiar on all shortcomings, 'Nothing to be made on turpentine!' The trouble, at the same time, is no more than at other dippings.

These things may all look simple in themselves, but it is worthy of observation that God is great in his simplicity; for proof of this, we may contemplate the dry or dead faces.

Another view of this subject may be urged, namely, that where this false dipping is not adopted, and chip-

ping is continued in bad weather, it will be found that, so soon as it does become good, so that the turpentine will run, the pines on the good spots of land cannot be chipped because the boxes are full, in which case the turpentine will be lost, and, as they are the only spots that will pay well, the labor becomes valueless in good weather as well as bad, throwing off the first dipping into the time of the second chipping, which should properly belong to the second dipping. By resorting to the false dipping, each one would be brought right to its turn in good weather during the season. It is not safe to calculate upon the enjoyment of a good season every year.

Should there be no return of bad weather after chipping is commenced, the best plan is to make regular dippings, and carry the pines through a suitable process of labor with the season. In every instance of chipping, it will be well to refer to the article under the head of 'Time for C[illegible]pping.'

Many persons have taken an interest in the business of turpentine farming while pursuing another occupation on which they have placed their chief dependence. To those who are placed in this situation, more than any others, this subject is likely to prove very beneficial, and will undoubtedly justify them in giving it a trial.

FILLING BOXES.

Filling boxes may be considered among the difficulties which have proved a source of trouble to many. There are spots of land which will never fill the boxes from the time they are cut until they are abandoned; yet, nevertheless, the turpentine will run every time a fresh wound is inflicted. The mere running does not establish the fact that the box will ever be full; and, indeed, the only reliable dependence is to be found in the quality of the land. It would prove a better speculation to a man to box oaks than some pines, for they would show no turpentine, which would warn him to stop before proceeding too far; whereas the pines would exhibit just enough to lure him quietly along to his ruin. Be always careful, then, of nice-looking pines; for, if the land is poor and moist, you will be likely to find more water in them than turpentine. One proof of this will be found in the falling off of the turpentine; and then, some land will not fill over two thousand boxes out of ten in seven weeks, which shows two weeks of valueless labor: yet all the pines show turpentine, and the ten thousand have to be dipped to obtain the amount of two thousand. But we will suppose the seven weeks' chipping to be now passed over, and it is designed to fill the remainder before dipping; by continuing to chip, it would require the whole chipping season for two years, and then they will not be full, while every day's labor becomes of less and less value. Such land will throw the turpentine off the pines in July when the years are wet, and it

would only produce one-third of a barrel per day for five weeks' chipping. From this exhibit, it is apparent that, if chipping be continued, the day's work will run down to nothing; but, should they be dipped in five weeks, it would keep those pines that were on the good spots ready to chip, and the day's work would be the same.

Land that will fill thirty-five hundred boxes out of ten thousand in seven weeks, shows two chippings that are valueless; should chipping then be continued to fill the set of boxes, it would require the whole season of one year, and half the next. In wet years, this land bulges the hard turpentine the last of July, and throws it off the last of August and first of September. Should this set of boxes be dipped in five weeks, they would yield a fraction over two-thirds of a barrel per day.

Land that fills five thousand boxes out of ten with six chippings, which shows one valueless chipping, will take one year—that is, one season in one year—to fill the set, if chipping is continued. In wet years, this land bulges the turpentine the last of August, and throws it off in September. Should this set of boxes be dipped in five weeks, it will be a fraction over one barrel per day, say about one-sixth, whereas continuing to chip without dipping brings the value of the day to nothing.

Land that fills ten thousand boxes in five weeks needs no suggestion in furtherance of its improvement; it is good enough, and may be considered about equal to falling heir to miser's estates. The hard turpentine is thick, and sticks to the pines; so it does on

the other three qualities of land, where it is strong enough to fill in five weeks. This land will make two barrels and one-third per day.

Filling boxes is a matter which ought to be well considered. The best course to pursue is, to observe how many boxes the land will fill in five weeks when the weather is good. We will suppose a man to have ten thousand boxes, more or less: if it fills half, he can make a fortune in twelve years; if the whole of them, he might do the same in eight, provided he has enough to work on.

What is meant by five chippings (or five weeks) is the highest quantity of equal value, or as nearly so as can be obtained, according to natural principles.

A poorly cut set of boxes will hold seventy-two barrels; those that are well cut will hold more, and some of them less, but seventy-two is about an average. On one occasion, I had a hand who worked one hundred and ninety-three boxes on a good spot of land, being only of an average size, and they yielded two barrels and two buckets' full regularly, but, from the land being good, they all filled up. He dipped them five times with twenty-five chippings, which made twelve barrels of soft turpentine: this sold for three dollars and sixty cents per barrel, and ten barrels of hard sold for two dollars and twenty cents per barrel, thus realizing sixty-five dollars and twenty cents on one hundred and ninety-three boxes, lacking one week of chipping the longest season. This sums up the amount of two hundred and sixty dollars and eighty cents to the thousand boxes; and by taking the trouble to multiply this by the number in a set, a

tolerably handsome product would be found. If we bring our reason to bear upon this fact, we shall be compelled to admit that such a set of boxes would be worth a five-horse farm of common land. A trifling box will hold a pound of turpentine, and a pint will weigh over a pound. A gallon of No. 1 quality will weigh nine pounds, and of common nearly that weight, twenty-eight gallons of common making a barrel.

I should be willing to transfer my plantation to a man in lieu of thirty thousand round pines on land which would fill four times in twenty-one weeks, and situated contiguous to a market. In short, good turpentine land is a fortune, and for those who have the cash, now is the time.

MANAGEMENT.

I believe it is not too much to assert that the cases of bad management in the turpentine business are frequent; persons who are engaged in it are very apt to put off preparation until it is the season for chipping; some will make a little show of preparing, but, as a general thing, the greater proportion is left until the making season. This neglect is decidedly injurious; it interferes with the making labor, which should not be done, as the season of the year is too limited to admit of a waste of time.

In the first place, if the boxes are to cut, the hoops and timber should be got ready, and barrels prepared; and if they are cut, the opportunity of getting timber

and hoops is still better. Where a man has three sets of boxes on land that fills four times, he will need five hands, and they ought to be good ones. The boxes being ready, the hands can get their timber and set up their barrels by the time chipping season commences, and then two hands will be able to hoop off the barrels and keep the three steadily employed at chipping in good weather, while in bad the three can assist the two. Two good mules or oxen will do.

When the tenth of September arrives, the hands should be employed at getting off the turpentine, while it is rich and good, and easy to take off; if rightly managed, it will take less time and less barrels, and, at the same time, bring more money: added to this, the pines will be freed from labor, and shut up with lightwood, to enable them to withstand the bleak and severe blasts of winter.

By this arrangement, two months may now be appropriated to ditching and turfing, or any other kind of labor which may be thought most advantageous. Rather than be idle, the hands might be well employed during the two months in manuring the land, which will repay the labor by the yield of an increased quantity of turpentine in the next season.

Should any one entertain a doubt as to manuring producing an effect upon the pines which results in an additional amount of turpentine, I would advise them to try the experiment. Let them select out a particular spot, on which they can put the manure out in the winter season, where the pines can receive the benefit of it. On the arrival of spring and summer, they will find the boxes will be quickly filled. I have known

them to be filled with two chippings on land that my cattle had manured.

On land that will fill three times, four hands would be sufficient to carry on three sets of boxes, and so on downwards.

No doubt there will be many objections to the opinions on this subject above expressed, and assertions of their impracticability. These, however, do not establish the best system of management, nor prove that every man is sufficiently well informed to avail himself of all the advantages presented in his own business. One thing is certain, and will be readily admitted, that whatever business a man may prefer to place his dependence on for support, he cannot understand it too well.

TAKING THE LIGHTWOOD.

At the time when chipping is commenced in spring season, it is a proverbial remark among men in the turpentine business that they are taking off the lightwood, by which they design to be understood that when the lightwood is off the boxes will be filled; nothing, indeed, is looked for until it is removed, and then, should the dipping be made late in the season, the fault is attributed to the tardiness of the lightwood in coming off; in other words, that there is so much of it, that several chippings are necessary to get it off: none will say it is solid, because it has not had time. This indicates there is something else beside

lightwood; but if a question is asked in that direction, but little else than a negative may be expected. It is generally considered that it should be taken off before the weather becomes warm, in order to have the pines ready at the return of warm weather. It should be borne in mind that no boxes will fill until the warm weather sets in; and the only reason the dippings come off so late is, that the air ascends in consequence of the early chipping, and then, at the return of warm weather, the wood is generally so dry that it takes several chippings to get it off, and the few last that are applied fills the boxes, from which it is apparent that the weather has been mainly conducive to that effect; moreover, the number of chippings that are put on too soon are additional to the necessary quantity after it becomes warm. This early commencement is also a waste of time and wood, and expenses are incurred, which might have been prevented simply by employing the hands to make barrels. If this were done, the lightwood and gum on it together would keep out the cool air until the weather became warm, when a few chippings would fill the boxes, and at the same time save expenses. It may also be remarked, that chipping too soon is productive of injury for the whole season, as it takes place just in time to admit the air passing in when the sap starts up, thereby loosening the skin from the wood. A pine may be compared somewhat to a tar-kiln—it should be kept tightly closed until warm weather, and then opened, as is the spout of the kiln.

We will pass on to notice the effects of late chipping when there is no lightwood, when we find it said

that a little turpentine runs in the heat of the day. If persons so situated are asked if they intend to continue chipping for the little they obtain, a reply in the affirmative may almost be relied on, while the fact is disregarded that the pines are all the while receiving the cool air, and thus injuring the turpentine that is made. What is thus obtained is not worth five cents. The same will also be the case in the spring. Next, take notice of those pines in spring that were chipped late in the fall, and when there is no lightwood in the way. If an observation be made upon this, you may expect to be told that the dipping is coming off in June. But 'the pines have given out.' How? 'Well, all the turpentine is nearly out of them; that is the cause of it.' Not a word about the land; and the lightwood is now no longer the fault, so that opinions have undergone some change. It is easy to perceive, from this, that there is great use for lightwood at the chipping spot; it may be classed among the necessary operations of Nature, and, indeed, may be considered as the life-guard between the pine and the owner.

Again I would urge that chipping be stopped on the tenth of September, and thus allow the pines to make lightwood and gum over, so as to be prepared for the rough shocks of hoary winter: by pursuing this course, the wood will be kept green and porous, and be ready by the ensuing spring, and then, on the appearance of warm weather, the turpentine will be found starting, like the blood from a vein, as the roundshave goes on, which will yield a large income every day with but little chipping, beside keeping the pines healthy and saving expenses.

However unimportant this may seem in itself, its effects are found, like telegraphic commnnication, to be working in secret. By attention to the article headed 'Time for Chipping,' much danger may be avoided, as well as prevented. I consider it decidedly preferable to have a little lightwood at the spot where I chip all the year, than otherwise, as inflicting the wound anew keeps it from getting solid. It serves an equally good purpose by keeping out the cool air at the different changes of the weather in chipping season; besides, it does not affect the tender skin, as it is green, and cuts soft after the first chipping, causing turpentine to come through easy: to keep it there through the season, or nearly so, we must cut but little, which makes more and lasts longer.

LATE AND EARLY CHIPPING.

The common understanding as to what is styled early chipping is that which is commenced before the weather becomes warm, which sends up the cool, dry air, and causes what is called dead and dry faces. As the weather is yet cool, the chipping draws no turpentine to fill the grain of wood, and the air passes up, drying and killing the wood above the face or scarred surface, and causing the skin to dry. Sometimes it ascends several feet, the distance being ascertained by the quantity of water or turpentine in the timber. A great many chippings will thus be occasioned, and delay the dipping until June, thus consuming half the

season, whereas, by waiting for warm weather, it might be accomplished in April.

It should be observed that early chipping is not so bad as late, because warm weather follows early, while cold succeeds to late chipping; they are both, however, objectionable.

Late chipping is that which is continued after the tenth of September, or as long as warm days continue, and it is while the sap is going down: after it ceases, there is no turpentine left in the timber to make lightwood, consequently the grain of wood is left open and the cool air passes up through the winter. The pines will make a little gum, but not sufficient quantity to do good; then, when chipping season comes on in spring, the wood will stand white for several days, which shows there is neither turpentine nor lightwood, and the dipping will come off in June, at about the latter end, whereas if late chipping was avoided, the dipping would come off in April. Cool weather following late chipping, the business is sent rapidly to perdition, bearing comparison with the last efforts of expiring Nature: the pines being then full of dry wood, the land, on the return of spring, is unable to render any assistance. The effect is about the same as would be experienced by a man who had destroyed one arm, thereby having but one left to work with, which he soon discovers cannot do half.

The land is thus reduced to making one or two dippings in the season, and if those should prove anywise large, the owner is satisfied, and nothing is said or thought about the falling off in the day's work; the hands are praised while standing behind the bush

laughing at their owners; but when creditors begin to be importunate, the turpentine come in for a share of cursing because of the diminution in quantity. Looking then at the pines, and finding the straw appears green, he applies the roundshave: a little runs, which relieves him, and he goes off ready to add another creditor, until, at length, they become too numerous.

GOOD RUNNING PINES.

An opinion prevails in the minds of some persons that one pine will run better than another, without reference to the quality of the land. I believe this to be erroneous, and for the reasons following:

If we observe the large broad-topped pine, which stands true and straight, protecting its scar from the immediate heat of the sun, and also from cold dews in autumn, it will be found to show all its hard turpentine, which is rich. This pine separates its hard from the soft turpentine by means of its broad top: the soft is obtained before autumn, and as the hard is there to be taken off at that time, it is considered all very satisfactory.

Let us notice next the small-topped pine, which, by leaning, exposes its scar to the direct heat of the sun, filling its box at two or three chippings, for which it obtains praise. This pine gives poor turpentine: in autumn, it shows scarcely any hard, the soft being obtained before that period.

Again, let us observe the broad-topped pine that

leans, and thereby exposes its scar immediately to the sun. A few chippings fills the box, and pleases the owner: the turpentine, however, is poor, and in autumn it has but little hard.

Take another glance at a small-topped pine, one that stands true and straight among a bunch of broad-top pines: in autumn, this will exhibit all of its hard turpentine; it divides up the hard and soft by the protection of other pines around it. This one, like those before alluded to, comes in for its share of encomium, to which it is doubtless entitled.

Occasionally it happens that two pines are standing near to each other in the same position, one of which is found to run well, while the other does not; if the cause is sought into, it will be discovered that the one which is failing is unsound, or is either too young or too old. There is no other natural cause for this circumstance, and if it is occasioned by an artificial one, the good sense of the owner will apprise him of it.

So far as good running pines are concerned, no difference exists in them other than is created by the influences of the land and the weather. The best turpentine is made on those pines that divides and, at the same time, protects it from the weather.

DEAD FACES.

Several causes may be enumerated as contributing to produce what is called 'dead faces,' and are both natural and artificial. Unsound pines, and those having natural scars, are among the former influences, while raking, burning and over-boring are comprised in the latter. But the greatest, and, indeed, universal cause is late and early chipping, the former of which is the worst. Its effect is most visible on dry land; as there is very little water in pines that are so situated, when chipping is continued late, the grain of the wood is left open, through which the cool air ascends, and kills the wood for some distance up above the scarred surface. The dryer and stronger the land, the worse it is: where pines are on wet land, the destruction is not so great; but those that are on land which does not kill the wood, it will look white when chipped the next spring, for a long time, and the turpentine will fail to run.

The water in the timber on the wet land keeps out much of the cool air, but frequent applications will soon ruin the pines on all land, and must eventually destroy any man's business. The people in North Carolina have sunk thousands of dollars by it.

I have known pines to be entirely worn out, without there being a dead face in the forest, and the turpentine would run as free from them as it had ever done, where they had not been chipped late. A case of this kind occurred with D. Williamson, Esq., of Craven county, N. C.; he never permitted late chip-

ping, and I have seen pines finally ruined by it in a few years, and that, too, on good land. The practice should be stopped, and the best remedy for pines that have been injured by it, is to carry them through a regular course with the season.

REDUCING LABOR.

If it were possible to cut boxes large enough to contain the turpentine which the land would make during a season, there would be no occasion for an article upon this subject; but, as this is not practicable, we had better proceed to it's examination. Five chippings is the highest quantity of equal value on good land, or good spots of land; this number will fill a box where rules of good management are practised, and, if ditching and turfing were added, four would be sufficient. After the best spots have filled the boxes, if chipping is continued, it then sets aside those spots of land, and leaves nothing but poor land to chip on, which yields less and less every day, as the next best fills, and the next, and so on, until, at length, it gets so poor that the balance will not fill at all.

It may be remarked here that the hands are losing the same amount of time, expenses are increasing, the season is advancing, and in a short time it has passed away, leaving us in possession only of the unwelcome knowledge that next to nothing has been made. On the other hand, if the pines were chipped that had the full boxes uutil the poor spots filled, the turpentine

would be lost—showing labor wasted for nothing—and in this way a man might go on trying to fill his set of boxes, until he found that not more than three thousand would do so, with five chippings; probably the next three thousand would require ten, and the next twenty chippings, whereas those that are filled with five might be so five times in the season. Thus, in trying to fill the whole set, the first three thousand boxes will probably only yield one or two fillings, which may be estimated as a clear loss of three fillings in one season on the best spots of land.

While efforts are being made to fill the whole set, notwithstanding the full ones may be dropped off from service to wait for the others, another thing is very clear, namely, that the hands will lose the same time, and they are thus encouraged in a negligent system of doing their work. Again: when the set of boxes have been well dipped over, they are then all ready to chip, and it will be necessary to pay good attention to the hands for the next three weeks at least, otherwise they will not chip the set, and thus the good spots will be failing as well as the rest, in consequence of this neglect. To keep hands in order, they should have no more given to them than they can do, and then be kept well accustomed to looking for it. When I followed the business, my hands required whipping every time after dipping when chipping was commenced, and I only worked with two reduced chippings: I stopped that plan, and worked with five. I did not dip so many barrels, but more was obtained to the day's work: it made the dipping come off the two reduced weeks' chipping, and my hands got along without so

much of the whip. A man may well afford to make small dippings when he can obtain his reward in the days' work chipping.

It may be objected, but without good ground, that this is a poor rule. If, however, a piece of land will not make enough to be worked in this way, it is not worth working at all. But many persons in this country are really working such land as could not pay unless turpentine would bring five dollars per barrel. It is this very class that will be found objecting, and their opinions are evidently influenced by the poor quality of the land on which they are placing their dependence. Those who carry on a large business of this kind, were it not that they introduce new sets of boxes every year, or every other year, would, by the system of reducing labor, be inevitably broken up. Some are in the habit of attaching a small traffic to their business, such as merchandise or farming, which helps them along without adding new boxes. This sort of assistance has sustained many who would never have succeeded otherwise.

Many persons think that it is this class of driving, hard workers who understand the business. If the existing rules of working are persisted in, the means they have adopted to aid them will have to be again resorted to and kept up. I have tried for a long time to find a man who could tell me how many boxes his land would fill without reducing the labor, and have not found him as yet. One man has informed me, to be sure, that he made eight hundred dollars to the hand one year, and I know that his land will not fill more than two thousand in ten, with two reduced chip-

pings, which is equal to one-fourth of a barrel per day. Some say he understands it. The same man gave sixty dollars for a set of boxes, because he was told they dipped forty barrels. Who will deny that this is proof of the most consummate wisdom? This individual presents a fine subject for some of our Africans to speculate on.

We have another view of this question, which will throw more light upon it, and may possibly prove to be worthy of careful consideration. As we have a set of boxes—and they are in pines, not in oaks—we look for all of them to show turpentine when a wound is inflicted, but not all to fill a box: say, now, we chip five weeks (thirty days), then dip out, and they make thirty barrels by dipping the whole set; this would give about four thousand full boxes as the yield of the entire set: some will be full, others half, and some a third, and so on down to nothing, but the whole set makes four thousand full ones, amounting to a barrel per day of soft turpentine. This would be a good business; it would be one hundred and fifty-six barrels of soft turpentine to the season, if it was a good one, which would average $468 for the soft and $312 for the hard, making $780 for the longest season; but the shortest would be $378 for soft and $252 for hard, making together $630, which would be a certain thing. Now, we might go on in this loose way, trying to fill the whole set by twice filling, which would require thirteen chippings each time: the dipping would be forty-six barrels, by resorting to the poor, to make a whole filling, which could not be done. This would return $138 to the owner for one dipping, with which

he would appear to be satisfied, forgetting the time he had consumed, and at the end of the year he would have $276, making a clear loss of $102 to the season on the soft; now add the hard, which would be $128, and we find the whole loss to be $238 for the long seasons, and the short ones in proportion.

From all the experience I have had upon the subject, and which has been the result of much observation, this is the way that a vast number of those who are engaged in the business are in the habit of proceeding, and they not only lose money, but ruin their hands by it; moreover, it is done simply by trying to fill the set clear of any artificial obstruction.

An opinion has been expressed by a friend of mine, a Mr. Debrule, that it would be better to keep a hand going about over the woods dipping out the full boxes, but I do not believe the plan would prove a good one. If any one should commence it, he would assuredly find it necessary to continue, for by the time he had got through the set, they would be nearly in the same state again all over the forest, and the owner would be accumulating as many creditors around him as a brigadier-general has soldiers. The only way is to dip the whole set, whether they be full, half full, or a third or fourth full; and if only a teaspoonfull, dip it out, and you will then know what you are doing.

FALL TURPENTINE.

It is quite as easy for us to expect too much from the bounty of Nature as it is from the liberality of our neighbors, and it is by thus frequently repeating our demands, that we sometimes realize the reward of our covetousness, by the loss of benefits which we should otherwise have possessed. A prominent error in this respect has prevailed in the desire to make turpentine in the fall season of the year, while the sap is going down: this has caused much less to be made when the regular season for making has arrived. As a general thing, more turpentine will run when the sap is going down than at any other time, but then it deprives the pines of that support which they require to heal and protect them during the fall and winter, and of their rest in autumn: the dropping of their straw, at this time, for the protection of the roots, sufficiently indicates that Nature is preparing for repose, and should admonish us at once to discontinue our labor. But the promptings of avarice lead many to conclude that, as they are now doing better than they have the whole season previously, they will continue to work at them so long as they have a warm day for the purpose.

On the return of spring, the pines are suffering from the effects of this misguided treatment, and, in their turn, inflict a wound upon their owners' pockets, by withholding, probably until July, the produce which would otherwise long before have been yielded to their grasp, and leaving them to the contemplation of pale and feeble faces for many a day.

This practice of drawing off the turpentine in the fall has proved a much greater drawback on the prosperity of those in the business than many are disposed to believe. It is very clearly against the dictates of Nature, for it draws off all the support which the pines have to depend on during their period of resting: it fills the forest with dry pine wood, causing many to deplore the wretched prospect which forebodes them so much future suffering. The better the land is, the more fatal, and the greater the loss; and that is not all; the turpentine that is on the pines is losing its value, and much is lost by saving in winter, added to which it consumes more time and takes more barrels. In no part of the business have I observed such universal mismanagement as there is in this.

INSECTS.

This is a topic which, from its extent, I am fearful I may not be able to do that justice which its importance requires, but will proceed to the enumeration of those with which I am best acquainted.

1. Black Bug.—This insect is found as small as a hair up to its full-grown state, which is about the size of a common straw, and a quarter of an inch long. It will cut through the thickest kind of bark to the skin at any size, and commences to do so at the appearance of warm weather.

These bugs operate on any kind of pine wood that is in a decaying position, with the bark on it. They

are round, and when grown the tail end appears broken, with a slope downwards. They are very hard, and never cut into the wood of the pine, but work up the tender skin, and when found they appear to be very stealthy in their habits. They live all the winter, but not between the bark and wood, nor, so far as I have discovered, anywhere else on the pine. After perforating to the skin, they work away for about three weeks, by which time they change to a pale yellow color, and appear soft; they then deposit the egg, or insect, that produces the cutting worm, leaving nothing but the hollow shell, which decays. There is a bug of the same kind, which works in sour, moist pine wood, and I believe is the male of the species which makes the cutting worm. Bugs cut round, and worms flat holes.

2. Cutting Worm.—This insect is produced by the bug aforementioned: when hatched or spawned, they are not larger than a tobacco seed, are perfectly white, and commence feeding upon the sour, moist dust which is made by the parent bug; when they attain a length of from half an inch to an inch, they are found to be flat, larger at the head than any where else, with ridges around them, and a dark brown beek, or bill, to the head, with two prongs, uniting at the points, which are very hard, and used to cut with. About the latter end of May they may be heard cutting the wood, and from that time, more or less, as the season progresses, they live entirely upon the live and sour moisture of a pine, and when that stops they disappear. They reach their growth while at work, and attain about one and a half to two inches in length, with a size in proportion.

These worms will cut their way entirely through a pine if they do not come in contact with lightwood or seasoned wood. They never go backwards, but are constant progressing by means of pressure against the end of their tail, which, at the same time, enables them to cut. Some persons contend they have seen where worms had cut through lightwood; they do not say they saw them at it, but simply saw the place where they had done so. This has not even the semblance of probability to support it, forasmuch as lightwood is made by the spirits soaking through the wood, and the spirits of turpentine is made by the air and turpentine coming in contact; and as the worm lives entirely on the live and sour moisture of the wood, it is undoubtedly a mistake. Lightwood is made by the action of the air passing through the holes where the worm has bored, and the dust will sometimes become so after they have rammed it into their holes. Now, as this worm cannot crawl backwards, nor cut their way through seasoned wood or lightwood, and that made by the spirits and air, it is apparent that they must keep at work, which they do, ramming the dust into their holes behind them, close enough to keep the air back until they can cut away, for if it overtook them they would die. I have found them dead at one grain of lightwood, where they were confined in the wood: however thin it may be, they cannot live; and seasoned wood will produce the same effect. They appear to be very sensitive to the touch, for, notwithstanding the depth they may be in the wood, if it be but slightly jarred, they will discontinue their operations; and while they are at it, if they come to a hole

that others have cut, and the wood is either lightwood or seasoned, they will die; but if neither of these, they pass out at them. Such incidents may be considered as among their misfortunes. Sometimes one will work faster than another, and let in the air behind them, which kills the hindmost ones, and at other times they work round and get into the same hole, which is another of their misfortunes. They never cut from the outside to the inside (that is, from the outside of the bark), but move outwardly, from the inside; the parent bug is, however, an exception, as they pass inwardly from the outside.

These movements of the worm show how the labor should be studied, and illustrates also the advantage of boxing the pines at the proper season, as the bug cannot effect its object in seasoned wood nor lightwood, and will not attempt it in spring. We should be careful, then, when we box pines, and how we scar and cut them down, or suffer skids to be cut, or do anything else that will induce the bug, for he is ready at all other times except winter and fall. Other names might be appropriately applied to this worm, as, for instance, Ramming worm, Laboring worm, or Forward-moving worm.

After the live and sour moisture leaves a pine, and it passes into a mouldering state, there are other kinds of insects which take the place of this, one of which is white, with a large head, which lives all winter and crawls backwards, and another of a pale yellow, one size all the way. These follow after the cutting worm.

3. Black Worm.—This insect is to be found on green pines in the latter part of spring, from which

time, during the remainder of the season, they may be seen wherever scars reach the wood. They commence working on the tender skin, which passes out with the turpentine, and cakes, getting their growth, which is about the size of a common garden worm, and of the same shape, while at work: they then come out, and what becomes of them I cannot tell. I once put one in a vial for several days: he drew up to about one-third of his length, and became still. Some one of my family broke the vial, which put an end to my investigation. They never enter the wood of a pine, but live entirely on the moisture of it, and when sourness takes place they disappear. This insect is caused by a black fly laying its egg on the edge of a scar.

4. Straw Worm.—This insect is to be found on the boughs of pines from the latter part of July during the remainder of the season, and never more than one in a place. They are of the same shape, size and figure as the persimmon worm, differing only in color, which is like the outside bark of the pine, and they live entirely on the green pine straw. I am not able to give the origin of this insect, but have no doubt, from the time of its appearance, that it is produced by some large fly.

The Cutting, Black and Straw worms each live one season.

FALL OF HARD TURPENTINE.

Many have been the pleasing sensations experienced by those engaged in the turpentine business on witnessing the fall of hard turpentine from the pines, the belief being prevalent that it was in consequence of there being so much; and, so long as the delusion continues, they will go on their way rejoicing at what they consider a favorable omen. Believing the error to be very common, I have frequently asked the question, thereby satisfying myself of the fact. Not long since, a neighbor of mine, a Mr. Davis, said to me that his was falling off, and that he considered it as a good sign. I objected to its being so, farther than that, if it had not been there, it could not, of course, have fallen; and it is naturally a bad sign in every instance except one, and that is on land through which the water soaks, leaving a dry surface. Such land will not make so much turpentine as the common moist-soil land, yet the hard turpentine will stick longer to the pines: its tap roots being in the water, causes less to be made, and its spur roots being on a dry surface, occasions its sticking longer, as they cannot convey the water up on the outside, whereas on moist-soil land they will do so. Any wet land, or wet spots of it, will throw off the turpentine worse than dry, strong land: as autumn opproaches, we may observe it bulging all over the forest, and while in this state a stranger would imagine there was any quantity, but in one or two weeks it can be seen on the surface, thin (it should be got off before this takes place), in wide

flakes, and the side that was next the wood looks a little stained with the lightwood where the water has driven off with it. It never commences bulging and falling except at the wood, which is another evidence that it is not caused by the quantity; if it were so, it would mash up like wetted flour, or any other soft substance, and commence breaking somewhere else as well as at the wood, which is never the case; besides, the dry, strong land has it thick, and it sticks to the pines all the winter. Heavy rains or wet seasons will bulge it in chipping season; when it does so, it should be taken off, to prevent the soft from running on it, and dropping over the box. In cool spring seasons, the hard turpentine will commence caking thick sooner than when the season is warm, and if it should continue long cool, it will cause the soft to drop over the box, and thus be the means of less being made that season in soft, which is not often noticed. In years that are wet it falls off worse than in the dry ones; but on dry, strong land it is thick, and sticks all over the face through the winter. Sometimes high winds will ring the pines about, and cause it to pop off, particularly after rainy weather.

Land that will fill twenty-five hundred boxes out of ten thousand with five chippings, will throw off the turpentine in July of wet years, and will average one-third of a barrel.

Land that fills thirty-five hundred with five chippings will bulge it in July, and throw it the last of August. Such land will average two-thirds or three-fourths of a barrel.

Land that fills from five to six thousand with five

chippings will bulge it the latter end of August, and throw it in September: it will average one and one-sixth barrels.

Land that fills ninety-six and ninety-eight hundred in five weeks will hold the turpentine. Such land will average two and two-thirds barrels; but it should be remembered that land is of a mixed character, poor and rich, wet and dry: the fall, the thickness and the time will tell the story on every spot, whether rich and wet, or poor and wet, and how much.

DEAD PINES.

Numerous causes may be mentioned as accelerating the death of pines, among which the following are the most prominent: raking, burning, over boxing, running the faces together by chipping, and hauling heavy loads through the forest in wet weather, which latter practice skins up the roots, and breaks loose their hold, in consequence of the land's being wet and soft, thus causing them to give way. Hauling in wet weather should be carefully attended to, and cart-paths made in the thinnest part of the forest. Sometimes they are destroyed by cutting skids, which causes insects to get into them, and this is generally done at any time of the season that hands desire to cut them: it would be far better to cut something else for skids instead of pines; and in cutting pines for timber, the months of November, December and January will be found most suitable, when the skin sticks close to the wood, and

dries quick in spring; at this period the bug will not get into those which stand contiguous to the pines that were cut down, for the reason that sourness soon leaves the decaying one, and as the skin dries very quick, the cutting worm has no opportunity to propagate. When pines are cut down in the season while the sap is up, there is more sourness, and it continues longer, thereby giving the insect a better opportunity of multiplying, and causing them frequently to get into the live ones that stand adjoining.

Whenever pines that are in a green state are blown down, they should be removed, and all scars of various kinds should be avoided as much as possible, excepting those which are made by labor, when thin chips should be cut.

Changes of weather will kill pines, especially when they have been much wounded: sometimes the wounds themselves, or their having numerous decayed limbs, and thereby causing too much lightwood, will kill them. Long spells of wet weather may be set down as the greatest natural cause of their death, and fire the principal artificial one. In 1855 more pines were destroyed by fire than at any other time in my remembrance.

LIVE PINES.

For the guidance of those who desire to keep their pines alive and healthy, a few rules, hereafter annexed, will prove worthy of their attention.

The land should be ditched and turfed.

Only one box should be cut in each pine, taking care to do that, as well as the curing, at the right time.

The proper time for chipping should be observed, as also the right quantity to be chipped.

Never allow the pines to be cut down nor hacked, raked round nor burned, nor the land burned over.

Never suffer the turpentine to stand too long in the boxes, nor on the faces.

Be careful about hauling, and move all the pines in a green state that are blown down.

Never permit hands to carry fire into the forest, and keep all the dead trees cut down, to protect them from lightning and secret woods' burners.

Finally, look over the forest regularly in dry weather, it being unnecessary when it is wet.

By a careful attention to these suggestions, the land will make more turpentine, and the forest will be left in a green, healthy state.

WORKING HANDS.

There are some considerations connected with the discussion of this subject which render it rather difficult to do it full justice; fully impressed with its importance, however, from experience which I had once in my life, I will proceed to investigate the matter, regardless of existing prejudices, and with the hope that my readers will appreciate my remarks as they are intended.

Where turpentine farmers have hands to do their work, and have not the opportunity of being steadily with them, they ought to have their boxes counted, and the number set down, taking care to designate the quantity in particular spots of the forest, as, for instance, so many between certain paths or branches, or such ridges or savannah. The hands should then be compelled to commence at a certain spot on every Monday morning, and chip in a given direction, until they get over the whole. As the owner knows the strength of his land, and how many boxes there are in every given spot, he will know every night what the day's work is worth, whether considered at the time or not, and if the hand has not arrived at the right point he must be attended to instantly, otherwise he will not be over by the end of the week, and thus turpentine will fall short; besides, the work is thereby rendered troublesome, without there being any actual necessity for it. Some hands will intentionally work otherwise, so that they may commence at some desired point of their own on the following week; at other

times they will commence at a point directly against the owner's directions. These things are done designedly to take the advantage.

The proper way is, to let a hand know how many boxes he has to chip in a week, and follow him up; if he is inclined to refuse, he will begin to miss one now and then, and, as likely as not, just where the land is good. Mark those pines precisely where the next chip comes, in order that he may see you are watching him. Having succeeded in stopping that, if he is still inclined to oppose you, he will draw up the face by making a shorter stroke: mark it, and at the place where he will cut it out. When that is put a stop to, he will commence leaving the points to the middle of the face: mark them: and at other times he will chip too shallow. Sometimes he will include all of these tricks in going once over them, and in addition leave one side unchipped: mark these pines just where he must cut it out next time. By this means he will find that you are paying attention to your business. At other times he will chip on each side of a path, as far as he thinks you can see while passing. You should then go from the path to those thick places near by, and you will probably find he has left the pines on all those spots, and likely enough it will be where the land is good; yet he does not think of these things: mark this also. It should now be considered whether he knows how to course pines well or not, and whether his tool is in good order or not, and thrash him accordingly.

I once had a hired hand that I followed so close, he quit the woods and hid his roundshave: just before I

reached the spot where I intended to collar him, a deer jumped up, from which I knew he was gone, but I found his roundshave under the grass at the edge of the road.

Hands should always know how many boxes they have: some of them will do four times the walking to chip a set of pines that others would, and yet the hand that walked the most would be much the best one to chip.

Some hands never learn to keep their tools fastened and whetted as they should, to work to any advantage: these things should be looked into, and, at the end of every week, they should be made to put their tools where they may be easily seen, and kept in good order, so that, in the event of changing hands, they would be readily obtainable by any one who might be sent after them.

It is necessary for the owner, while pursuing such strict measures with his hands, to apply a judicious amount of restraint upon himself: he should, by no means, indulge in more freedom with them than becomes him as their master, for, if he does, they will be soon found smart enough to endeavor to render him subject to them, instead of they to him. Another thing to avoid is, the practice of telling hands that they had not chipped or dipped certain spots of the forest, for the purpose of finding out or trying the hand; it causes good hands, who are willing to do their work, to lose confidence in their owners, and fail frequently to do their duty, when they would not have done so otherwise. He should, in the first place, go and see, and make signs that would be understood by the hand,

such as marking the pines exactly where the round-shave cuts it out the first time it passes round; by this he is at once convinced that you do not wish to accuse him wrongfully, and it operates as a guard against future errors, and causes him to maintain confidence in his owner.

I have frequently heard it remarked that turpentine has ruined more hands than anything else in this country; I believe it has, and it is because the owner did not attend to his part of the business. The inducements for idleness in the forest are great, as well for the owner as the hands. Some men allow their hands to do just as they think proper; work when they please and wherever they please, and destroy any thing that annoys them, when at the same time they might have made a fortune for their owner, and had a trifle in their own pocket. The following instance, and one which often occurs, may serve as an illustration: hands are given so many barrels per day to dip, which should not be done; then, when they come to the good spots of land, they do not have a half day's work to get what the owner required for the day. In this case the hand proves to be wiser than the owner, yet he does not know the cause: the quantity given is probably not even enough for the poor spots. If a large dipping happens to be made, the mistakes of the owner are still more palpable: sometimes, if one hand dips more than another, the owner will remark that he has done his work better, without really knowing anything about it. The hands will know which among them has worked the best, while they do not understand the reason of the difference in the effect. Fre-

quently, the hand who has had the greatest quantity of poor land has labored hardest, and the others know it. At other times, the owner will say that one hand had the best cut boxes: now, if that were the only cause, the one who had the poorest cut boxes would be ready to dip one or two weeks sooner than the others, making the same amount to the day's work. The fact is, that the cutting of the boxes has nothing whatever to do with the land, and such expressions tend only to strengthen the conclusion that the owner is little better informed upon the subject than are his hands.

One of my neighbors, not long ago, failed for a less sum than his pines would have sold for, from oversight in this very matter. It cannot be denied that the idleness of hands will make a great difference, and that badly-cut boxes will do the same, but it is well to keep such facts before us, for our constant reflection.

One conclusion, upon a full consideration of this subject, impresses itself strongly upon my mind, and that is, that hands in general do not deserve so much blame as is almost universally heaped upon them, yet I have found they needed the most attention when they appeared in the best humor, as they seemed to have some idea of working a man's patience on a new scale. When this is observed, a man should be equally prompt in attending to his business, and take the same steps as before. If they then take a notion to lounge off into the woods for a day or two, it is advisable to let the deed produce its own consequences, without interfering at all with their allowance on that account, or depriving them of anything which they ought to

have at the end of the year. By an opposite course to this, the owner will only degrade himself, and will soon find that he is not fitted to own hands.

Having thus impressed a hand that you are not disturbed by his neglect of duty, it will be necessary also to avoid appearing excessively gratified when he does better, at a future period. This treatment keeps them in their proper places; and as they perceive, by your daily conduct, that things pass over and are settled at the same time, a confidence is engrafted in the negro toward his owner. Masters may rely upon it that hands will work better from firm conviction than any other way.

Hands should never be allowed to work in a loose manner. If they do what is given to them before the week is out, and it amounts to a reasonable week's work, let them stop; but when put to work, they should be kept close at it, and not allowed to frolic to it by chipping and hacking every pine they pass. This method of working will find good clothes and plenty to eat. Give them all night for rest, and then have their labor the next day, whether they rested the overnight or not, provided this has been caused by their own trifling habits.

When put to dipping turpentine they should hav two buckets; lazy hands prefer one; but, as they cost little, two is best, as one can be left over the barrel to drain while the other is filling. Give them a certain time to dip a set of boxes, allowing for the preparation; and never permit them to have pieces of barrels or half barrels about in the woods, for, as sure as you do, they will have a cart moving pieces from one to

the other every day, and at the same time they will try to persuade you that it cannot be helped. I have accustomed myself to telling my hands, when I put them to dipping, that I will punish every such offence: this nips it in the bud. If the practice be tolerated, these pieces or half barrels will generally be at the extreme ends of the forest from each other, and will consume as much time as the turpentine is worth.

Never task hands at cutting boxes; it is preferable to go with them and have them cut carefully, if they do no more than five. They should not be trusted to do any part of the work without necessary attention, and carts should be so constructed that the hands cannot put the loads either too far backwards or forwards. If this is not done, some hands will ruin a yoke of steers with half loads. I have thought sometimes that they hunted for logs, so that they might drive the cart over them, and, indeed, take every possible advantage, even to neglecting to water and feed the animals, fix the yoke, etc.

There is one thing, however, that a negro will not forget, and that is, to tell his owner when his allowance is out, or his clothes are out, or his shoes have given out. Such matters are generally found out soon enough by the owners as well as the negroes, and more to the purpose. I have had them to walk by me, and let the old shoes drop off their feet, so that I should notice it, and at other times to complain that their feet were badly cut up, for want of shoes. To illustrate the artfulness of some of the tricks to which they will resort, I will mention an instance that occurred to myself: having bought one of my hands a pair of

shoes, another one, who had an old pair, would pass my door every time he went to work, and drop off his shoes, and if I happened to be in the yard, would pass me and make the same effort. I let him repeat it until I felt satisfied that he knew I noticed it: I then had him whipped, without telling him the cause, and whether he understood it or not, he never tried a repetition of the manœuvre.

Every man who is endowed with common sense can better tell what a negro requires than he can himself, and he should be encouraged according to the circumstances of the case.

I have found amongst them what I call negro sickness, such as headache, pain in the eyes, arms and legs, their knees hurting them, pain in the back, stiff neck, feet and hands feeling dead, pain across the breast, and a severe griping in the bowels. Now, when they are ignorant enough to complain of this kind of sickness, just tell them it is a busy time, and you will not allow any such sickness, and that will be sufficient. If a negro is really sick you may easily discover it: and should he need medicine, give it to him yourself, and be certain he takes it down.

If it be possible to avoid hiring hands, never do it, for they will invariably put more mean tricks into the heads of your own negroes than they ever knew before.

BOXES.

The progressive advance which has taken place in the business of manufacturing turpentine has led to numerous suggestions about boxes. One gentleman, Mr. H. Jones, has shown a partiality for the ground, or earth box, at the root of the tree, but this has proved to be a dirty as well as unprofitable plan. I was informed by another gentleman, Mr. S. Boughey, not long ago, that he intended to try tin boxes, by nailing the box near the chipping spot, to see if he could not gain time in saving hard turpentine in winter. Some questions naturally present themselves to the mind in relation to this plan, which I will take the opportunity to mention. Would not the health of the pines be affected by the iron nails? and when the face got up high, would not the box be in the way of the roundshave handle, by keeping it moved up, and, when very high, would not a ladder be needed, with bucket to carry up, or otherwise take the box down and come to the surface and empty it in the bucket, restoring the box back?

Not many years ago some genius tried to invent a plan for boring pines with an augur, but how that was to be accomplished I do not know, unless the turpentine would run to a great extent, so as to drown the mouth of the hole with a supply of new turpentine; should that not be the case, an air-pump would last one year, I think. But would not that be folly?

The above may be set down as so much windwork, and will do to talk about at times when ways

and means give out, and men have a little spare breath to throw away. Yankee Jack professes to show that young men can teach older ones, and when asked what a box was, he said, it was a hole cut in a pine, just in the shape of a canoe when well cut, only that both ends, or corners, were just alike, but if cut badly, it was like a half canoe. My notion is, that Jack's box is the best when it is cut right. Let it be about twelve inches above the surface; this is the only safe plan; as the turpentine runs principally on the outside of the wood, and the spirits make by coming to the air, which renders the box solid, it is certainly preferable to any other; at the same time, the box is right where it can be easily emptied.

SOLID BOX TURPENTINE.

This turpentine is influenced entirely by the action of the weather. As the box is perfectly solid, having been killed by the wood becoming seasoned, and that being also solid and slick by being turned into light-wood, it has clearly no effect on the turpentine; when, therefore, the weather is cool, it is stiff, and when hot, it resembles water, from its softness, and is the easiest turpentine to dip; but in cool weather it is the hardest, which shows conclusively that it is operated on exclusively by the weather. Another evidence, however, is to be found in the fact that it is never grainy, because the spirits are made without any injury from the box.

When cool weather first makes its appearance in autumn this turpentine will let the dipper in easy, and as soon as the air strikes it, when raised by the dipper, it will be stiff, and that frequently before it can be put into the bucket. This shows that the heat is not quite out of it, but so soon as that is removed, by the continuance of cool weather, the dipper will be hard to get down in the box, and if the turpentine be left therein, it will remain stiff until the return of warm weather in the following spring. This is called 'yellow dip,' and, as a general thing, makes more spirits than any other turpentine.

QUALITIES OF TURPENTINE.

Preliminary to the observations which I have to offer upon this subject, it may be premised, that there are but two natural qualities of turpentine, commonly known as hard and soft; the hard sticks on the face or scarred surface of the pine, and is called 'scrape,' but the soft runs in the box, and is called 'dip.'

The various ages of boxes, however, present some distinguishing features in relation to these qualities which are worthy of remark, and the knowledge of which may prove beneficial.

New box turpentine, in the first place, is not stained by the box, in consequence of its newness, and is therefore saved from the disadvantage sometimes experienced of discoloration; but it nevertheless injures it to a great extent before the spirits can be made,

although some will make at any rate, and at the same time be deprived of properties retained in the box.

In the next, or second season, the boxes will be found to have a little lightwood, and become partially solid, from which they do not do half the injury; the turpentine will be a little darker, from the stain of the lightwood, but will make more spirits. The third year will be still more so, and the fourth year the boxes will be perfect.

All soft turpentine is good when barreled without any more unnecessary substance than is natural, and is fit for market.

Hard turpentine barreled in a similar way is the same, but it must be taken off in the warm days in autumn.

TURPENTINE AND SPIRITS.

Turpentine is a sort of sticky mucilage, partly composed of water: when it first comes to the air it looks as clear as a christal, and at that time it bears a strong resemblance, on touching it with the tongue, to the white of an egg, assuming, as it gets older, the taste of spirits. It is drawn from the green pine by making scars that pass through the bark to the wood in any way. When distilled, it is found to be of three qualities, rosin, water and spirits.

Spirits of turpentine is produced by the air and turpentine coming in contact, and will require about six days to complete. In the course of this time it

experiences considerable loss, as it begins to lose, more or less, from the time it commences the operation of making. Sometimes it takes a longer time than at others, but six days is as close as I can calculate at present. It will not lose more than one-tenth what it makes, but after the process of making is completed, it will be all lost if it is permitted to remain any considerable time exposed to the air.

Turpentine should be well barreled as soon as possible. By leaving it in boxes and on the pines, much injury is done to the trees by the spirits, which, however, is seldom noticed; and where persons are engaged in the business they should take the turpentine from the pines as soon as possible in the autumn, as they will be much benefitted thereby, and at the same time spirits will be saved.

Any kind of pine wood that is clear of stain will prevent turpentine from making spirits, or, at least, of finishing the operation, if the turpentine can be upon it before the spirits are made.

EXPERIMENT.

At the time I was first induced to embark into the turpentine business, I concluded that it was best to do, as most others have done under similar circumstances, namely, imitate the plans of others, and obtain all the information I possibly could from them. I soon found that those who pushed their business late and early were considered the most scientific, and I consequently

pursued a similar course, which soon led to my being placed in the same rank with those whose example I had followed. Still, at the end of the year my pocket would be empty, and all my labor and information only tended to convince me that I knew nothing about it, and that my industry was mere folly. This was the more strongly impressed upon my mind upon observing that one of my hands, who was far from being considered among the best, had dipped the most, while he had less boxes, and to explain the cause I was unable. I did not raise money enough to use in the business I was carrying on, and it sometimes appeared to me that I should have to stop. Frequently, when I have believed I was doing the best, the reverse would prove to be the fact.

It was from experience such as this that I obtained my education. I then turned over a fresh leaf, and did less labor, made more money, paid my creditors, and lived as comfortably as I wished.

Had I employed any one to attend to my business before I understood it, it is most probable that I should have laid the fault to their account; but as this was not the case, and I superintended it myself, I knew that my work was done. One of my hands would dip me a certain quantity of turpentine every time he dipped out, and when the land was dry and weather good he would do it with five chippings, and when wet, seven. The rest of the hands would make a difference of seven and eight barrels at times, with the same number of chippings. This led me to examine the matter well, and I found that where the land was dry and the weather good it filled so many more boxes that the

quantity was increased, while when wet it filled less. These facts suggested the notion of ditching my land and turfing, which I should have had completed at this time had not my property been destroyed by fire, and thus put a stop to my operations. I feel sufficiently confident in the advantage of this plan, however, to assure those of my readers who may be engaged in the business that it cannot fail to remunerate them, provided the land is worth working. If mistaken in this, I shall abandon the hope of being of any farther use in community.

I have suffered much in the business, and I know of those at this time who are laboring under similar disadvantages to those I have experienced; it is this knowledge which has induced me to confer with others engaged in the business as to what advance they were making in the march of improvement; and it is with regret I have to say that many are totally unacquainted with the most dangerous points. Some men have, indeed, gone so far as to boast that they have made more turpentine in one year than I have ever made, and that I could not tell them about turpentine, &c.—(land, I believe, makes turpentine, not men)—but whether I understood it or not, I received over a barrel per day of soft turpentine, while my neighbors only received a half barrel per day on the same land, or land of the same quality. This is a fact I can establish to the satisfaction of any one.

Again: I have found men who are silly enough to believe that land requires fourteen chippings to make a dipping, whereas there is but twenty-six weeks in a year for chipping, even in the longest seasons. A

very little reflection would be necessary to convince any man that a piece of land which will not fill three thousand boxes in ten, with five chippings, is not worth working. I consider it to be one of the true secrets of the business to know what the land will fill, and that this large quantity of chippings is from an artificial cause; all natural causes would not bring the land to it in twenty years, and in every instance where more than seven chippings are used, it is caused by man, and not by Nature. It may be added, in conclusion, that if land requires what some men assert is required by the pines, the most profitable operation would be to stop the business altogether.

DIPPING TURPENTINE.

Turpentine should be dipped out so soon as the best spots of land have filled the boxes. If three chippings will do it, then dip: if four or five will fill them, do it then, but go no higher, as that will amount to four dippings during the season, and admit of the pines being turned off in sufficient time to rest.

Hands should be allowed a given time to dip a set of boxes, including what is necessary for preparation, and be furnished with two buckets, as they cost but little, and thus one may drain over the barrel while the other is filling. Lazy hands prefer one.

One of the first things necessary to be attended to by the hand, however, when he is about to commence dipping, is to examine the edges of the face for the

appearance of the black worm, and if he discovers any of them, he should take it off with the dipper, and then proceed with his dipping. A gentleman with whom I am acquainted (Mr. A. Oglesby) informs me that he has been in the habit of removing them with the roundshave while chipping, but my objection to that plan is that it consumes too much time to do it then, besides which the roundshave is a cutting instrument, and does harm, which the dipper does not, and, moreover, the latter consumes less time.

The shorter the time that turpentine is permitted to stand in the boxes the more money it is worth, and the better it is for the pines.

SCRAPING TURPENTINE.

Each hand should be furnished with a cast-steel scraper, which should be kept in good order, so as to take the turpentine off clean, and do it without cutting up the edges where the scarred and natural surface come together. The best way is to allow a given time, taking preparation into the account, for removing the turpentine, and always before cool weather, as it will then be worth more, comes off easier, consumes less time and takes less barrels, and moreover turns off the pines free from spirits shooting through them in different directions, by which means they will be kept in a healthy state, and will thus yield a larger amount in the next year. Simple as this may appear, it will be found, on examination, to be correct.

TURPENTINE FARMERS.

Persons engaged in the business of turpentine farming are more exposed to the good or ill-will of others than those, perhaps, in any other occupation of life, while it is, at the same time, the most valuable and pleasant occupation a man can have. It has fewer branches, and they are simpler, than any other with which I am acquainted, besides which it is healthy.

One peculiar disadvantage is, however, found in the business, and that is, that no steps have ever yet been taken to protect their interest. Some will say that we have laws to protect us, but that is little else than wind, and never will be in this case, unless the period shall arrive when every man will evince his gratification at the success of his neighbor, which, I fear, is far enough off in the obscurities of the future. On the other hand, others will urge self-protection. But, how shall we arrive at that? Why, rake round the pines, and burn the litter off. Now, if that was necessary to be done, I would freely give up my pines to any man, for it will require four chippings more than is natural for the first filling, and the manure would not get back in ten years: in this way, a man would have to stop business in seven or eight years.

It must be obvious to every one that land has its support from the litter, and, consequently, to burn it would inflict a great injury. I am able to show to any one, and to prove it by good authority, that only one burning cut short one-third of the quantity of turpentine on the first dipping, and the other three, in the

same season, fell still lower; worse than all, the land has not yet recovered, although it has been done six years since.

The only means to remedy the evil, that suggests itself at present to my mind, is to prepare the land, cut down all the dead trees, and hire a man to stay in the forest; the neighbors should then have written agreements between each other, and execute them on the first offence; have no fire at any time without the consent and presence of each other, and let the contracting parties each have a copy of such agreement at his house, by which to refresh his memory at any time; and, above all, never allow hands to carry fire into the forest at night, under the pretext of hunting, nor in the day-time, under a penalty of thirty-nine lashes, which will be found a good preventive.

There are those, I do not doubt, who will urge that this would be using too much restriction, but to such I will submit the following proposition for their reflection: We will suppose a good neighbor, having an expensive family, for the support of whom his dependence was principally placed on the forest; to sustain himself against such demands, let us imagine him to have three sets of boxes on land that made him two barrels of soft turpentine per day, which would be nine hundred and thirty-six barrels in one season, and realize the sum of two thousand eight hundred and eight dollars, or thereabouts; add to this the hard turpentine, yielding about one thousand eight hundred and seventy-six dollars, and we find the proceeds of his business to be, for one year, in round numbers, about four thousand six hundred and eighty-four dol-

lars. Now, if these pines were to be destroyed, and the means of support to be thus suddenly wrested from the family of a worthy citizen, will any one be found bold enough to assert that too much restriction could have been used in preventing such destruction? or, to deny the fact of its being so? or to say that he might turn to some other occupation that would pay better? If any such there be, I will take the liberty to give my unqualified contradiction to their assumptions, and at the same time to state that there is no kind of business to which the capacity of the majority of turpentine farmers are adapted that will pay them anything like as well.

The turpentine business is at present confined to a very few States of our Union, and to only a small portion of those States; and when we reflect that it is used all over the world, and that, as time advances, there will undoubtedly be found more need for it, the importance of using all possible care, and of attaining all the knowledge in our power in relation to it, must be apparent to the humblest capacity.

No man requires any better land than will fill a common-sized set of boxes four times in the season; it will bring enough of anything we try to raise, such as corn, cotton, small grain, peas and potatoes. An opinion erroneously prevails that a man must be poor because he has only pine land, when it frequently happens that it is the best land he could get if he would merely clear it and take the pine bark off it, so as to prevent that from mixing with the soil. Many acres of pine land which have been sold for fifty cents were worth a hundred dollars, yet so long as the existing

prejudice prevails, men will be only considered poor that are owners of pine land.

In illustration of these remarks, I have found that farmers who could run from five to seven plows were considered rich, while a man with a set and a half of boxes would be certainly placed among the comparatively poorer classes; yet the boxes of these latter were really worth more than the farm, without either of the parties having any knowledge of the fact. One reason for this ignorance arises from the employment of overseers, instead of men attending to their own business, and in their not possessing adequate capital, under these circumstances, for carrying it on.

Once let a man have a large capital employed, and popular acclamation immediately places him at once in the list of the wealthy; but, for my part, I consider there is nothing less desirable than a large, and oft-times poor plantation, with forty or fifty negroes. I have found many persons, and am at this time acquainted with several, who are worth four times as much as they themselves believe, but it would require a man endowed with persuasive powers far exceeding mine to induce them to think so. The delusive trickery which predominates over common sense has got so far in the ascendant, that opinions promulgated by uneducated men like myself are considered worth next nothing, although no one will undertake publicly to refute them.

Remarking, on one occasion, to a gentleman of my acquaintance that he made six dollars' worth of soft turpentine every day he chipped, or that his land did it for him, he contradicted me. I inquired if he had

not sold sixty barrels of soft turpentine at a certain time. He answered in the affirmative, remarking also that he obtained one hundred and eighty dollars for it, being three dollars per barrel, for which amount he chipped five weeks.

In Alabama the land, in some places, will make four barrels per day, yet it is looked upon as poor; indeed, a common phrase is, 'it is poor land, fit for nothing but turpentine.' Now, it takes land of the first quality to fill a set of boxes in five weeks, and no one could better himself in endeavoring to pass it off for fairer land, which might easily be done under the present impressions, but not to me, for I have seen them both worked.

Amid the mass of conflicting opinions in relation to this subject, it is somewhat cheering to find that there are some who have engaged in the business clinging to the belief that turpentine may yet prove of sufficient importance to justify its active pursuit. Hoping not to give offence by the liberty used in mentioning their names, I will introduce a few that are found in our own immediate neighborhood. The widow of Mr. N. Beasly is well known to be enjoying more than an easy competency, the proceeds of her husband's accumulations from turpentine. Mr. Beckton does not hesitate in telling the public that he can make twelve hundred dollars to the hand per year. Mr. Pritchet and Mr. Rhem readily admit that they are realizing several thousand dollars annually. Mr. J. Brock expresses the opinion that it takes good land to make turpentine, adding, that the business has not yet been understood, and that he knows of none in which so many

persons have been engaged which demonstrates such a want of sound practical knowledge, and consequent reformation in its management. He at the same time expresses his individual liking for its pursuit.

In view of all that has been or can be urged on the subject, one thing should always be borne in mind, however, namely, that it is not the man, but the land, that we must rely chiefly upon for success in getting turpentine. Some will insist upon giving the pines credit for it; but the pine is merely an instrument to convey and convert the sap into turpentine; it has nothing to do farther, and must be kept in order, to enable it to accomplish that.

Some men have proclaimed their dislike to the business because it will not support itself. But what supports the corn farmer, that every bread-eater praises? Ah, let's see! Wheat, rye, oats, peas, potatoes, garden vegetables, rice and poultry. What next? Hogs, sheep, mules, horses, and closing the catalogue, perhaps, with a few bees. Some raise their voices aloud in favor of cotton. Well, what supports it? Corn. What else? Peas, potatoes, rye, wheat, oats, garden vegetables, poultry, rice, hogs, sheep and cattle, mules, horses, and filling up the list with bees and goats.

Notwithstanding the necessity which is thus exhibited of a large amount of auxiliary aid in their support, cotton and corn possess a powerful influence in the minds of many when placed in comparison with our great staple. I propose, therefore, to analyze their relative claims to preference.

We will suppose a half day's work for each. Admitting the land made ten barrels per acre of corn,

which would be an acre and a half for the half day's work, we should have fifteen barrels of corn. Such land would yield one thousand pounds of cotton to the acre, and from an acre and a half we would thus receive fifteen hundred pounds of cotton; and from land of the same quality we could make one barrel of turpentine in the half day's work, the entire result being as follows:

Corn, 15 bbls, at $3 per bbl.,	$45	
Fodder - - - -	12	
Peas - - - - -	8	
	$65	for corn, peas and fodder.
Cotton, 1500 lbs. seed, 35 lbs. to the 100 picked, at 8 cts. per lb.,	$42,	for cotton.
Turpentine, 21 chippings, which may be relied on, and allowing $3 per bbl., same as corn, 21 bbls.,	$63	
Hard, at $2 per bbl., 21 bbls.,	42	
	$105,	for turpentine.

The above calculations for corn and cotton will, I think, be admitted as ranging up to the highest mark, while the amount for turpentine does not reach near to what I have known to be realized. I have bills in my possession which show as high as one hundred and four dollars on one-third of a day's chipping, and I did not put on more than nineteen chippings, while in good seasons there may be twenty-six made without any injury; moreover, the roundshave eats nothing while

working, nor when at rest. But some will say, pines will not last for many years at that rate. If those who doubt, will simply make the experiment, by cutting one box, and then keep the pines shut up with lightwood, and never rake nor burn, I feel no hesitation in asserting that land will last as long for turpentine as for anything else. The eighth of an inch is enough to cut at a time. See how many inches it will be to the season; and if land will do what it has done with nearly all of the support cut off by boxing, I will warrant it to double with one box.

An opinion has been expressed in a school-book (Wiley's North Carolina Reader, p. 346) that the business is not understood. As this is unquestionably too true, what objection can be raised to the formation of societies among turpentine farmers, for the diffusion of knowledge among themselves, in the same manner that corn farmers and others have found it their interest to do? If this were done, I think it may safely be asserted that much improvement might be effected in a short time; and, perhaps, another beneficial effect might thus be produced, by instructing children in the mysteries of a business on which many were destined to depend at a future day for support, instead of their being sent a long way from home, as they frequently are, to learn to forget it.

Many have learned, from such societies, that they did not possess the requisite information to carry on their daily occupation.

DURABILITY.

An objection exists in the minds of many persons who have contemplated embarking in the turpentine business, that it is but of short duration. An impression prevails that five or six years nearly stops the business, but how or why it is has never yet been attempted to be explained. If the opinion had any foundation in fact, even the ignorant African who has been engaged in the business would be able to inform them that pines were not worth boxing for the produce of five or six years. Indeed, it would be a poor speculation to embark in any business which must necessarily be limited to so short a period.

One thing may be noticed in this connection, which is, that any cause has never been alleged against men for failure to take the necessary steps to insure success, while it is proverbially remarked that either the pines or the land are at fault. It is also notorious that those who cut the most boxes and burn over the most land, and that also oftenest, and have chipped earlier and later than their neighbors, have been considered as best entitled to the approval and imitation of those pursuing the same avocation.

It is somewhat fortunate that there are conflicting opinions upon this subject, for we frequently find persons laboring assiduously to ruin the very best land. Every pine that is capable of bearing two boxes will soon be found to have them, and some even three and four. Then the match is applied to the falling litter, and the land is in this way deprived of all the means

it ought to possess of sustaining the pines; and, after a few years, if the quantity of turpentine is found to be reduced, no blame is attached to the narrow seams between the scarred surface, nor to burning or raking.

A case occurred in 1854, under my observation, which it will not, I think, be out of place to mention here: a gentleman named Scott had rented a lot of boxes on two pieces of land, one of which was poor and the other rich; the poor had low faces or scarred surface pines, and the rich had long or high scarred surface pines, and as there was more boxes than his hands could get over in a week, he told them to chip the low ones certainly every week, believing it would be the means of making the most, in consequence of the height, and to go on with the high ones for the remainder of the week, continuing so from one dipping to the next, the high ones missing half the quantity of chippings. The low boxes required seven chippings every time, and the high ones filled once with three and twice with four, yet neither Mr. Scott nor his hands ever noticed it. The pines on this good land were never chipped late, nor land burned over nor over boxed, and the turpentine run as free as ever it did; and while the poor land filled three thousand five hundred in ten thousand with seven chippings, the rich filled nine thousand three hundred in the same number with five. Mr. Scott is an old turpentine farmer.

Previous to this (in the year 1851) I worked a piece of this good land, and it made a little over fifteen barrels of soft turpentine to the five days' chipping: at the same date I worked a piece of land with second

year's boxes; though they were not very solid, they made nine barrels to five days' chipping. My land was not so good; in other words, one thousand six hundred and sixty-eight box faces on the good land run a fraction over three barrels for every chipping, and the same number on mine lacked a little of running two barrels. This shows my land had the most poor spots and less boxes filled.

Many cases similar to this have passed under my observation, and in 1855 I knew an experienced turpentine farmer to object to renting the above described piece of land on account of the long faces, but another man rented it, and the land filled the boxes with five chippings.

In 1847, another gentleman (Mr. Thomas) went to New Hanover county for the purpose of renting land, and he found a piece with six-foot faces: a friend of his (Mr. Bryan) advised him not to rent them, for the reason, as he said, that twenty chippings would not fill the boxes; and this was accompanied with the usual remark that the pines had paid well once, but had stopped suddenly. If this was correct, the man who first boxed them was not to be envied.

Any piece of land can be so worked as to require, from artificial causes, any number of chippings, and it may be done in three years as well as in ten; and, as regards its durability, land will last as long for turpentine as it will for anything, and pay better.

KEEPING PINES AIRTIGHT.

Among the errors prevailing in relation to the management of pines, the inattention to this subject is of more importance than is generally believed, and other causes are frequently assigned, when the fault may be really traced to the want of air-tight trees. It is as necessary for the pine to be kept so, as it is for a tar-kiln, and Nature shows it during the process of boxing and chipping, by the time and place the lightwood is made. It may be observed that lightwood makes faster against the sap than in any other direction: in spring it makes downwards faster than any other way, while in autumn it accumulates most upwards; but, at the same time, it makes more or less in every direction. The following may be enumerated among the causes which contribute to this defect:

1. If pines are chipped too late, so as to prevent them from making lightwood, the wood catches air in consequence.

2. If the lightwood is taken off too soon in spring they catch air, but not so bad as in autumn.

3. Stopping the roundshave to dip at the time the weather is improving, they catch air after the return of the first chipping, but this is of less importance than the preceding.

4. Where the turpentine is not dipped clean out of the bottom of new boxes, but taken out at the latter part of the season, the stump catches air and sends down the spirits, making solid lightwood.

The above will be found all-sufficient for purposes

of immediate reference, although insects and burning may be mentioned as instrumental causes; these latter, however, can be readily noticed. Extravagant opinions have prevailed in regard to this matter, but if attention be paid to the following rules, there will be very little doubt as to prevention of all difficulty from it: dip new boxes out as often as possible the first year, and perfectly clean every time, which shuts out air from the stump; let the lightwood stand on pines in spring until the weather becomes warm, which keeps out the air; never stop the roundshave to dip while the weather is daily improving, but do so when it is otherwise, and discontinue chipping by the tenth of September, or sooner if the weather renders it judicious. Attention to such regulations will be likely to keep air-tight pines.

DISEASES AND INSECTS.

In proceeding to the consideration of diseased pines as occasioned by insects, it may be remarked that the prejudice has become strongly rooted in the minds of many that they inflict the greatest injuries, even the destruction of the tree. If an explanation of such opinions be sought for, however, it is found impossible to arrive at it. One thing we certainly know, that cause produces effect, and it may be as well, therefore, to inquire, in the first place, where insects are found in pine wood? (For a description of their nature, see article under the head of 'Insects.') If we take fence

rails that have no bark on them, we shall find no insects, but on those that have bark they will be found, as deep in the wood as the sour moisture goes. It may be easily perceived that they never cut through those rails, the reason of which is that the wood dries and seasons fast enough to drive them out. At times they do not cut loose all the bark from the rail, because some spots of the tender skin dry before they cut to it, and adhere to the wood, by which means they are robbed of their support. Is there not here sufficient proof of the advantage gained by boxing at the proper season?

Next, let us observe the tops of the trees from which those rails were taken, when they are cut down in the winter season, and we shall find there are no worms getting into the green pines that stand near to those tops. Why is this? Simply because they are cut down at a time when there is no sap up the wood to produce sufficient moisture to sustain them for any very long period; and the wood being closer and drier in winter causes the sour moisture to leave soon in spring, hence they can have but a short life; but, on the other hand, if the pines be cut down when the weather is warm, and while growing, they will kill all that are near to them.

Again: cornering boxes in the spring will leave a sour chip, which will be the means of introducing the worm in pines. Also, cutting off large chips with the roundshave in damp weather, whether they sour before seasoning or not, will cause the worm to get into them. It is, indeed, remarkable what trifling circumstances will originate the insects in pines in warm weather.

Even trees blown down or cut down, at that season, will produce the effect on pines that stand near, but they will not do so in winter.

It is thus clearly apparent that the insect follows disease, and, consequently, if that were prevented, we should have little complaint of insects getting into the pines.

Additional boxes and green boxes are also instrumental in producing disease.

A question arises as to what caused the devastation among the pines in 1846. I have no hesitation in expressing my opinion that it was the work of Nature, namely, wet weather. Very old men in North Carolina have admitted that it was the wettest year they ever saw, taking into the account that there were no storms. The wet continued, I believe, for full three months, and a number of pines died in the following year from the effects of it. I have no doubt the pines would have been saved had ditching been adopted before the wet set in.

Finally, the instant more water gets into a pine than the straw can dispatch death will ensue, whether the tree be boxed or not. Then it is said the worms killed it. The neat finish on the outside of pine-straw shows that it is not designed to receive much water, yet it requires some to sustain it, for we find many pines die in excessive drouth, and that when they are not touched by insects.

SEASONED BOX TURPENTINE.

This turpentine dries behind and softens at the roundshave; in other words, as the roundshave inflicts fresh wounds, the turpentine runs down into the box, and softens that which has previously run into it; the box then commences drying the turpentine. It is governed entirely by the box and roundshave. Thus much for the true nature of these boxes.

GREEN BOX TURPENTINE.

This turpentine shrinks behind the roundshave and rises at it; in other words, as the roundshave inflicts fresh wounds, the turpentine runs down into the box and raises it: the wood of the box being green, open and porous, the turpentine runs down and makes deep lightwood. It is ruled entirely by the box and roundshave.

WHITE AND YELLOW ROSIN.

White rosin is made from turpentine which is taken from new boxes that are free from stain; it is considered to be worth more money than any other rosin. This, however, does not result so much from its whiteness as it does from the injury inflicted by the box

upon the turpentine before the spirits are made; as a large portion is injured in this way, distilling does not take the property out of the injured part. It is this which occasions the falling off in the quantity of spirits from new turpentine that so frequently happens. It has been contended by some that the distance turpentine falls makes the difference in rosin; but it might fall across the world, so far as distance is concerned; that has nothing to do with it.

Yellow rosin is made from turpentine taken from solid boxes, or, indeed, any box that is stained: the unsolid ones are not always stained, but the solid ones are.

STAINS.

Rosin is stained in various ways, and may be prevented to some extent. The lightwood stain is worst, and most universal; this is made by spirits soaking into the green pine wood. The color of tar is worthy of notice, and also how the sun draws the stain out of the long faces. Bark, chips, straw and trash of any kind will do it, and also the weather black on the scarred surface. This latter should be scraped clean off in autumn, to prevent the weather black. Burning pines smuts the turpentine and makes black rosin; and heavy rains will wash it off them for years, as we know it will take years to remove it.

GRAINED TURPENTINE.

This turpentine is injured before the spirits are made, to a greater or less extent, according to the state of the wood it rests upon, whether green and new or seasoned and new. Seasoned boxes make it more grainy than green ones, because it takes more effect before the spirits are made. The seasoned make less spirits, but the most valuable rosin, and is worth more money than the green: it is harder to work; hence we find this turpentine lumpy and grainy after the roundshave has passed a day or two; then, when it returns, we find it all settled together soft. As we proceed, we discover that this turpentine adheres to the box, and becomes more difficult to dip, by crumbling, and showing, at the same time, a dry, white appearance.

UNGRAINED TURPENTINE.

This turpentine is found all alike, in a solid body, as nothing has any effect on it but the weather, which allows all the spirits to make: it adheres together in one body, and when raised by the dipper we find it ropes and runs, and is stiff or soft as the weather may be cool or hot. We are thus admonished of the utility of a solid box, that will not injure our turpentine.

VIRGIN DIP.

How this name for any description of turpentine originated, is a matter which I must acknowledge my inability to explain. Turpentine is so called when the boxes are first cut; but whether the box is the virgin, or the pine, or the land, we are not able to discover. We might very readily infer that the turpentine itself is intended, but that, it appears to me, might more appropriately be considered as a born creature.

New back box turpentine is also called virgin; but whether the pine or the land, or the box, or the turpentine are to be considered the virgin—the newly born—does not appear.

Now, does inflicting a fresh wound on an old pine bring old turpentine because it runs new—it is called so, at least; but, as Major Jones says, I would like to hear it 'splained 'zac'ly,' so it could be understood.

Every crop of corn that is made on the same land is called new; would not the same name suit for turpentine?

HIGH BOX DIP.

This is another of the inexplicable names for which I am totally at a loss to account. Solid box turpentine is called high box dip, but how high the box must be to merit the appellation has not yet been explained. Would five, ten, fifteen or seventeen feet be

considered sufficient, and who cuts so high as that? Is the box called high, because it is cut low, and stands to old age? And is the turpentine high box dip because it is dipped out of low boxes? 'I pause for a reply?'

NATURAL OBSTRUCTIONS, AND THE WAY TO TELL THEM.

1. Wet land.	1. Hard turpentine falls off, and is thin.
2. Turf, and the growth of small bushes.	2. Boxes fill irregularly: where there is no turf they fill regularly.
3. Excessive drouth, and wet, windy weather.	

The remedy for this latter obstruction is to stop chipping in such cases.

ARTIFICIAL OBSTRUCTIONS.

1. Over-boxing, or cutting too many boxes in one pine, and at the wrong season; also, not curing them in time.
2. Cornering boxes in spring season.
3. Additional boxes.
4. Cutting over, or re-cutting boxes.
5. Raking around pines.

6. Burning pines.
7. Burning the land over.
8. Chipping too soon.
9. Chipping too late.
10. Cutting off large chips, especially in wet or damp weather.
11. Chipping in excessive drouth, or wet, windy weather.
12. Stopping the roundshave to dip, when the weather is daily improving.
13. Neglecting to dip the turpentine when the best spots of land fill the boxes.
14. Permitting the hard turpentine to stand too long on the pines in autumn.
15. Negligence in any of the branches of the business.

It is thus manifest that the list of artificial obstructions preponderates considerably over the natural.

HOOPS AND TIMBER.

Many different opinions prevail as to getting timber for barrels. Some persons believe that hands cannot produce more than one hundred and fifty staves per day after the timber is sawed, and others appear to be perfectly satisfied when they get two hundred per day. When I followed the business, I required from my hands two thousand per week after the timber was sawed, and when Saturday night came the work was done—timber bolted, riven, drawn, chopped and piled.

The various methods pursued in working hands produces a great difference in the amount of labor performed. Some advocate getting to work early, which is well enough in itself, but I want to see the hand that works when he gets at it.

Staves should be got thirty-two inches long for turpentine barrels, and a half inch thick after it is dressed, ready for the barrel. Best quality staves will make from fifty-eight to sixty-two barrels to the thousand.

Heading ought to be got out nineteen inches long and nine wide, if in two pieces; but if it is in one piece, it should be as wide as long. Hands can get two hundred pieces of two-piece heading per day, and one hundred and twenty-five one-piece heading from the block.

Barrel timber should be got in November, December and January, and piled in the shade or in a house out of the sun, and that precisely like cording wood. Timber seasoned in the shade will hold turpentine better than when seasoned in the sun, and work easier, and hoops stick to the barrels better.

Hoops should be got at the same season with barrel timber, to prevent injuring the stump or roots. Do not cut them when the sap is up, as it injures the stump, kills many of them, and, if followed up, after a few years it will ruin the whole.

Hands can cut and draw a hundred poles per day, but this depends upon the thickness or quantity that stands on the land; if very close together, they can cut and draw more.

All hoops should be drawn level, and the ground end well crooked at the time it is drawn, which will

thus support the brittle end: when not crooked, they are likely to break at that end when they are locked.

COOPERING.

But little difficulty occurs in qualifying a hand to make a barrel, which may be done in a few weeks with ordinary care on the part of the person instructing him. It is certainly preferable for an industrious white man to teach the negro, than to depend upon his being instructed by one of his own color. Even though a white man may be inexperienced himself, a little attention to the hand until he can joint a stave well, and keep it in the right shape, will have passed him through the chief difficulty. The next object to be attained is to fill the head hoop well when setting the barrel up, and level it before adzing. A negro should never be allowed to walk round a barrel when setting hoops, as by so doing he will fail to get the hoops straight round the barrel; he should also avoid striking more than is absolutely necessary.

Much depends upon the management as to the number of barrels a hand should put up in a day, but six is the least that ought to be permitted from any one.

LAND.

So numerous are the opinions which are expressed as to the qualities of land best adapted to turpentine farming, that I can hardly expect to embody more than a few of the most popular within the compass of this little work. One very prevalent idea is, that if pines predominate in the forest, the land is certainly poor, no matter how much turpentine it makes.

Acting under this belief, one man sells his turpentine farm to get better land to farm on for cotton, at the same time admitting that he had made money on turpentine. Now, my notion is that it requires better land for turpentine than it does for cotton; but prejudice leads its victim blindly into the whirlpool of popular error. Had this man cleared his pine land, he would have been able to raise as much or more cotton on it than on that he had taken in its stead.

Another individual, speaking of buying land for turpentine, observes that the land is poor, but the pine would make all the turpentine a man wanted, and that he had picked out all the thick spots of pines and left the thin. This idea is tolerable, but cannot be fully relied on: the land might be better where the pines are thin, and fill more boxes; but if the land was better where the pines are thick, of course it would be still better.

These and similar views are entertained by many who have taken but little trouble to investigate the subject which so deeply affects their interest. I will therefore jot down a few results of my observation.

Many pieces of land which look well, and, indeed, are good, will not make much turpentine, from various causes, some of which are enumerated below:

1. Where the water soaks through land, leaving a dry surface, the hard turpentine will stick to the pines as well as on dry, strong land, but it is thin. This land should be ditched the first thing.

2. Broken or mountainous land, or any that has too much fall, will make the most turpentine in the spring season, if managed right, and in middling wet seasons.

3. Any kind of good land will make turpentine, but that which is sandy or gravelly is best for it.

4. Some land has a quicksand foundation, and if the pines are large, they will be found more or less leaning.

5. Where there is a good foundation of clay, the pines are likely to stand true, but their erectness will depend also upon their situation: when upon the sea-coast, being subject to storms, they are more likely to lean than when farther inland.

6. Too much under-growth is found on some good land, and boxing the pines gives more support to this growth, which should be cut down: some land is also too turfy, and if the turf is destroyed, it furnishes good manure.

7. Land is sometimes so situated that the strength of the falling litter is carried off by the water down the streams of branches, which becomes of a reddish color by it: water furrows and ditches should be made, to carry the water away sufficiently fast to prevent the strength of the litter being taken away from the pines.

8. Some land is naturally prepared, having no turf, being perfectly level, and neither too wet nor too dry.

9. The best turpentine land is worth $22 50 per acre; second best, $15; third quality, $8, and fourth ditto, 40 cents per acre. Some men will be found actually working land of this last quality, and who, moreover, have attained some popularity in the business: no matter—turpentine runs, and they have their name up.

But let us take a natural view of the subject, and we find some acres worth $100, down to nothing; and then see what a set of boxes will make on the best land for one year, at three dollars per barrel for soft, and two dollars for hard, which is an average price in this market:

No. 1	makes,	in one year, per set,	$1440.
No. 2	do.	do.	$1092.
No. 3	do.	do.	$720.
No. 4	do.	do.	$360.

I submit these figures with full confidence in their accuracy, and knowing that some have outstripped the sums mentioned. With these facts before them, where are the croakers about the ruinous nature of the turpentine business? Where are the cotton or corn farmers can compete with such exhibits as Nos. 1 and 2; even No. 3 will excite their emulation somewhat to come up with it.

SMALL ITEMS.

1. Ditch and turf the land, which will take the water out of the pines, and the turf will rot and make manure.

2. Cut down all the dead trees, which will prove a protection against lightning and secret forest burners.

3. Hire a man to attend in the forest in dry weather: when wet, it is unnecessary.

4. Cut one box in a pine, and it will be supported, taking care to do it at the right season, and in proportion to the size of the pine.

5. Cure the boxes the first season, or as much so as possible.

6. Chip straight across the grain of the wood, and wait for warm weather to do it.

7. Never stop the roundshave to dip turpentine when the weather is improving, except under special circumstances.

8. Never chip after the tenth of September, and you will be able to make early spring dippings.

9. Dip out the turpentine from boxes on the poor spots of land at the same time you dip those which are on the best spots, whether they are full or not. If you cannot always get a large ear of corn, there is no reason in throwing away the small ones.

10. Take off the hard turpentine in the warm days of autumn, when it is rich and good, and fit for market: it injures the pines when it stands long upon them.

11. Be attentive to the hands at all times, as rigid

observance of that rule will prevent the variations too frequently occasioned by negligence.

12. Rest assured that, if properly attended to, no occupation will prove more profitable than turpentine farming, where the land is good. Even at present prices, no one can establish the contrary of this, though some will pretend to deny it.

TRUSS HOOPS.

Head hoops should be got six feet long, and in making fourteen inches lap should be allowed, somewhat dependent, however, on the thickness of the laps. Round the two lower edges and the outside upper edge. The inside upper edge should be left unrounded, so as to prevent the staves from splintering when adzing the barrel.

Quarter hoops require to be made large enough to pass easily over the head hoop. Four hoops are a set, two head and two quarter.

Some persons use catch hoops, for the purpose of catching the end of the barrel when trussing, but these are unnecessary, except when staves are badly jointed, have narrow ends, and are one-sided.

White oak is the best to make truss hoops: they ought to be one-and-a-half inches wide and three-quarters thick. A set is worth two dollars.

TAR.

Although this article has no necessary connection with the subject treated of in this Work, some remarks upon it may probably prove not uninteresting to my readers, especially such of them as are inexperienced in the matter.

My own experience has been rather limited, but in the course of my acquaintance I have heard many opinions upon it; and, as I have worked but little at the business, I will take the liberty of introducing the plan adopted by R. Williams, Esq., which appears to me to be about as good as any that can be suggested. It may be as well to premise, however, in the first place, that if a man wishes to follow the business, he must have good land, as the better the land the richer and deeper is the lightwood; but the quantity that may be obtained on any land depends upon the number of scars on the pines, and their size.

On commencing, lay off the bed as large as it is desired to be, and make a circle on the outside; then make another circle one-third of the way on the inside from the outer circle to the centre. The earth should then be taken from the inside circle, and put from the outside to the inner one, thereby raising the surface on the outside above the natural one; this is to carry the fire to the first layer of lightwood, and at the same time give a descent to the centre, which should be perfectly smooth. Next, cut the ditch from the centre, as far beyond the bed as is needed, with a slope from the centre of the kiln, replacing back the earth as it

was before the ditch was dug. Then split the lightwood tolerably fine, mixing the poor and rich equally, and of the same size, leaving the small knots and hard pieces to go in the centre, to bear the main heat of the fire, and the long pieces to go on the outside. Carry the outside of the kiln up straight, and continue until it is as high as necessary, then crown it off, leaving the outside lowest. The kiln should be made air-tight, as the lightwood can be placed all the way, and when done, twig it well with long-straw pine boughs, and bank the dirt eighteen inches and well rammed, having, at the same time, good logs to hold the dirt: stop banking about four inches from the top, and cover it with thin light turf, firing it round the edge. As it coals over on the top, keep throwing on dirt to increase the weight, and when the top is completely coaled over take off one course of logs, and let the kiln remain until the fire gets down to the next course, taking care, at the same time, to prevent the fire from going down faster in one place than another: where it goes too fast, dirt should be thrown on, and worked down with a handspike, by forcing it end foremost, giving the hindmost lightwood or high places air at the same time until the fire becomes level, when it should have air all round alike.

Dig the tar-hole at the spout after the kiln is banked, and never unstop the spout until the first course of logs is taken off, unless you discover signs of too much tar. It should be run with a drowning spout.

Make the barrels the first thing, so that, when the tar commences running, you have them ready.

When you are satisfied that the tar is done running,

it will only be necessary to bank the coal up tight, and the fire will go out.

I have tried this plan of managing tar, and succeeded with it very well, and I would therefore unhesitatingly recommend it.

Misfortunes that we sometimes hear of taking place with kilns commonly arise from negligence, and consequently I shall not describe them.

STRAW.

As a careful examination of the difference in the characteristics of the straw will render assistance in acquiring knowledge in regard to the different kinds of pines, I deem it proper, before closing this little volume, to give my readers the result of my observation thereon, remarking, that an investigation into the works of Nature, as developed in the forest, will afford ample proof to the most skeptical that man has no necessity to seek farther for instruction.

The reader will be enabled to discover what trees will bear the most water by noticing the straw and leaves.

1. Pitch pine.—This tree will bear less water and drouth than any other pine in our country: its straw is the largest, longest and stiffest of any pine, and has a close glass-work surface; the fibre on the inside is of large, dry appearance, with very little pulp, and the extremity is a long, keen, hard point, which is a plain evidence that the tree is not intended to bear much

water any great length of time, for the straw cannot separate it from the sap, hence it cannot stand too much drouth. (What will be done with over-boxing in this case?) This pine is found more than any other where the land alternates between wet and dry: it is never found in millponds or rivers, nor on any land that is principally covered with water; indeed, it will not come up at all under the water. Where its tap root is only partially in the water, it may live if the spur roots are on dry land; and where the tap is not too much immerged in water, they will thrive and look well, in both dry and wet land, provided it is not too poor. This throws the burs more regularly than any other pine.

2. Common short-straw pine.—This description bears more water and drouth than any other kind, but no pines will live when their roots are covered with water for any great length of time: it will thrive near ponds, rivers and percosans, where the surface is flat and wet, and is found more than any other kind in such situations. It has a shorter, smaller straw than the pitch pine, and is more soft and pulpy; also, a blunt point, which shows it will bear more water, and as it is inferior to the pitch pine, and lives in subordinate localities, it holds more of the old burs than the pitch, and will also do so, from wounds or unsoundness, in any situation, more than the former.

3. Rosemary, or spruce pine.—There is less of this kind than any other, and its nature falls between the two preceding descriptions, except that it has the shortest, finest straw.

4. Cypress.—This tree will live with its roots con-

tinually in the water; its leaf, or straw, partakes somewhat of the nature of both, with large pulp and small fibre, which shows it is intended to separate a large quantity of water from the sap: the tree is thus furnished with ample natural protection.

POPULAR ERRORS.

1. Straining pines.
2. Cutting more than one box in a pine, and that regardless of the time of doing it.
3. The fall of hard turpentine from the quantity.
4. Hard turpentine sticking to pines on every quality of land.
5. Good running pines, so far as the trees alone are concerned.
6. Fall chipping.
7. Thick-sapped pines being best for turpentine.
8. Long pines being best for turpentine.
9. Taking off the lightwood before the turpentine will run.
10. Pines giving out in five years.
11. Burning the litter off land.
12. Raking around pines.
13. That any land will fill a set of boxes to pay before dipping.
14. Taking all land in its natural state.
15. Cornering boxes in spring.
16. Stopping the roundshave to dip the turpentine on every occasion.

17. Insects killing pines, independently of other causes.

18. Insects cutting through lightwood, or seasoned pine wood.

19. Pines with dark-colored bark being the best for turpentine.

20. Spur roots running on top of the surface being best for turpentine.

21. Pines making one grain annually.

Many of the ideas thus enumerated have received encouragement from men who have been looked upon as possessing considerable experience; and although I expect, from the popularity which they have gained, that I shall meet with some contradiction, I nevertheless pronounce them erroneous.

THE END.

ERRATA.

P. 22, line 11 from the bottom, for 'only,' read '*not* the land,' &c.

P. 52, line 5 " " strike out the word 'but,' and close sentence in next line at the word 'managed,' and read thus: 'soft. if they are properly managed. Round pines,' &c.